

# 江苏农业科学

第 47 卷 第 20 期 2019 年 10 月 20 日

## 目 次

### ●专论与综述

- 盐碱胁迫对植物形态和生理生化影响及植物响应的研究进展 ..... 焦德志,赵泽龙(1)
- 我国玉米穴施肥装置研究现状及展望 ..... 刘正道,何 进,王庆杰,等(5)
- 种子发芽率无损检测方法研究进展 ..... 崔华威,陶 飞,苗爱敏(9)
- 植物内生菌的生态学作用与天然产物研究现状及展望 ..... 郭宾会(13)
- 稻田水旱轮作生态效应研究进展及发展建议 ..... 刘益珍,姜振辉(19)
- SCD 基因与猪脂肪酸代谢(综述) ..... 蔡刚志,华再东,毕延震,等(24)
- CRISPR/Cas9 技术及其在水稻和小麦遗传改良中的应用综述 ..... 马斯霜,白海波,惠 建,等(29)
- 绿豆黄花叶病研究进展 ..... 吴然然,陈景斌,崔晓艳,等(33)
- 木麻黄病虫害及其防治的最新进展 ..... 谢银燕,王 松,吴春银,等(36)
- 糯质谷子育种研究进展 ..... 杨慧卿,王根全,郝晓芬,等(41)
- 普鲁兰多糖在食品保鲜和生物医学中的应用综述 ..... 孙 华,张彦昊,张 翔,等(48)
- 西甜瓜砧木育种研究进展 ..... 攸学松,朱 莉,曾剑波,等(52)
- 胡桃科植物的化感作用及其应用前景综述 ..... 马红叶,张文娥,潘学军,等(57)
- 棉花抗旱研究进展 ..... 李腾宇,汤孟玲,曹跃芬,等(64)
- 马铃薯锌生物强化研究进展 ..... 李成晨,索海翠,刘晓津,等(69)
- 油茶病害及其防治最新进展 ..... 单体江,章 颖,谢银燕,等(75)

### ●生物技术

- 培养条件对木薯胚性愈伤组织中 3 种保护酶活性的影响 ..... 黎 萍,李恒锐,杨海霞,等(80)
- 白菜类作物开花时间相关基因 *CCA1* 的克隆及功能标记开发 ..... 刘东让,侯喜林,肖 栋(84)
- 剪股颖不同外植体高频植株再生的研究 ..... 鲍荣静,梁 栋,梁慧敏(91)
- 棉花多肽的分离提取方法建立及质谱鉴定 ..... 袁 娜,戴 琛,杨郁文,等(95)
- 3 株猪流行性腹泻病毒 *SI* 基因的克隆及序列分析 ..... 王 婧,孙志雯,陈海峰,等(99)

芒果 *MinSPP* 基因的克隆及表达载体构建 ..... 白蓓蓓,荆永琳,蔡秉宇,等(103)

●遗传育种与耕作栽培

不同浓度尿素胁迫下苗期小麦根部形态和生理指标的变化 ..... 单 折,崔东洁,代西梅(108)

半冬性小麦新品种农麦 1 号选育及栽培技术 ..... 肖 群,贾瑞宇,宋开业,等(112)

低磷胁迫对甘蔗幼苗生长和生理特性的影响 ..... 柯 野,谢 璐,蓝 林,等(114)

硫素对不同品种油菜产量性状及其利用率的影响 ..... 王 锐,郑卫东,梁 琍,等(118)

蚓粪添加对盐胁迫下玉米幼苗生长和光合色素含量的影响 ..... 张 浩,赵雨欣,戴川景,等(122)

●植物保护

薏苡黑穗病田间发病形态观察及抗性鉴定 ..... 罗 凯,黎 青,杨成龙,等(126)

7 种杀菌剂对草莓胶孢炭疽菌和灰霉病病菌的室内毒力测定 ..... 郭 劼,王晓琳,黄洁雪,等(129)

辣木果腐病病原菌兰生炭疽菌(*Colletotrichum chlorophyti*)生物学特性及其防治药剂室内毒力测定  
..... 刘一贤,蔡志英,施玉萍,等(133)

不同药剂对江苏盐城温室黄瓜新病害靶斑病的室内毒力和田间防效 ..... 徐达勋,李卫星(138)

●园艺与林学

外源一氧化氮处理对山茶抗寒性的影响 ..... 周 琳,杨柳燕,潘 琦,等(142)

色彩美学在北方园林绿地中的应用 ..... 白晓霞(148)

遮阴处理对炮仗花植株生长发育的影响 ..... 吕彬洋,王 威,陈清西(152)

施用羽毛生物降解液对白菜生长和基质养分的影响 ..... 魏启舜,赵荷娟,周 影,等(156)

2 种唐松草属植物叶的解剖学研究 ..... 张友民,白 露,汤晓韵,等(160)

6 个杜鹃品种的抗旱性评价 ..... 郑 颖,陈清西(163)

不同单株大叶女贞对冬季低温的生理响应 ..... 高树涛,李文彬,郭绍霞,等(168)

生草栽培对赣南地区晚棱脐橙土壤微量元素及叶片营养吸收的影响 ..... 朱 婧,陈东晓,何天养,等(172)

秋季播种深度对麻风树周年生长及养分状况的影响 ..... 韦冬萍,韦剑锋,季 喆,等(177)

不同硝酸铵施用量对早熟禾生长和营养元素吸收的影响 ..... 刘瑞霞,余 波(181)

●畜牧兽医与水产蚕桑

LED 光质对钝顶螺旋藻抗氧化成分的影响 ..... 兰 蓉,沈 荣,王佔刚(184)

新疆车尔臣河塔里木裂腹鱼形态学特征 ..... 杨志军,曹希全,魏 杰,等(188)

基于线粒体 DNA 控制区序列的团头鲂 3 个选育群体遗传变异分析 ..... 唐首杰,毕 详,张飞明,等(191)

新疆某规模化驴场奶驴乳房炎的临床及实验室诊断 ..... 高静雯,曾宗波,武 磊,等(196)

基于 RGB 颜色空间的猪肉大理石纹分割 ..... 钱 蓉,李小金,董 伟,等(200)

硒镉同时暴露对鸡蛋和蛋鸡组织中硒镉含量的影响 ..... 陈大伟,刘茵茵,王倩倩,等(203)

●贮藏加工与检测分析

黄金叶与信阳群体种信阳毛尖茶的感官品质与化学成分比较 ..... 杨 转,刘玉飞,郭桂义,等(206)

荸荠表面泥土对荸荠贮藏品质的影响 ..... 张 巧,段振华,商飞飞,等(209)

原烟发酵过程化学成分的变化规律 ..... 叶建斌,王 璐,杨 峰,等(212)

芦柑果皮 2,4 - 二氯苯氧乙酸丁酯残留的 GC - ECD 快速筛查 ..... 郑志福,翁文婷,谢晓兰(218)

超声辅助提取多花黄精多糖工艺及生物活性研究 ..... 林志奎,金晓怀,张传海,等(221)

●农业工程与信息技术

基于机器视觉的珍珠颜色特征提取与识别 ..... 叶佳英,邓 飞,王佩欣,等(226)

基于深度迁移学习模型的花卉种类识别 ..... 刘嘉政(231)

一种单轨悬挂式采茶机结构设计及通风管流场仿真分析 ..... 欧阳爱国,邵 福,舒盛荣,等(236)

土壤连作障碍综合消减装备设计与试验 ..... 陆岱鹏,陶建平,马 艳,等(241)

蛆粪颗粒群物理参数与剪切强度的关系 ..... 徐 莉,杨启志,张 婧,等(248)

自走式排种器试验车的设计与试验 ..... 王旭东,陈 欣,周艳军,等(251)

基于冠层高光谱的油菜角果期红边参数及叶片 SPAD 值反演模型 ..... 张 锐,廖桂平,王 访,等(255)

●资源与环境

北京平原区土壤镉空间分布特征及健康风险评估 ..... 杨雪玲,刘慧琳,葛 畅,等(260)

不同施肥处理对有机种植土壤微生物区系的影响 ..... 王 超,刘明庆,黄思杰,等(266)

参照作物蒸散量计算模型在新疆干旱地区适用性研究 ..... 樊湘鹏,许 燕,周建平(273)

基于 GIS 与信息熵法的河南省城市用地演变特征研究 ..... 鲁春阳,文 枫,腊 梦,等(281)

基于地理加权 CLUE - S 模型的土地利用变化分区模拟 ..... 崔学森,刘轶伦,郭玉彬,等(287)

耐镉芽孢杆菌对  $Cd^{2+}$  的吸附机制 ..... 余雪梅,彭书明,王洪婷,等(293)

我国西南地区近 56 年参考作物蒸散量的敏感性分析 ..... 倪宁洪,李 果,崔宁博,等(298)

基于最小数据集的长春市耕地土壤质量评价 ..... 杨黎敏,李晓燕,任永星,等(305)

●农业经济与管理

新生代农民工就业质量评价体系 ..... 陈万明,徐国长,戴克清,等(311)

我国粮食安全评价指标体系的构建与实证研究 ..... 胡 令,朱荣花(316)

基于灰关联的农业科技投入产出滞后期确定及 DEA 效率测度 ..... 董奋义,齐 冰(322)

农业政策变动下农户种植意愿的影响因素研究——以油菜临储政策取消为例 ..... 刘 成,冯中朝(328)

资源禀赋、产业集聚对农业集群竞争力的影响 ..... 郝彦娜(333)

突出创新价值元素的科技成果广告设计案例评价分析 ..... 沈鸿猷(338)

中国新型城镇化质量与绿色经济效率协调发展分析 ..... 朱金鹤,张 瑶(341)

# JIANGSU AGRICULTURAL SCIENCES

Vol. 47 No. 20 October 20 2019

## CONTENTS

### Monograph and Review

Research progress on influences of saline – alkali stress on plant morphology, physiology and biochemistry and response of plants to saline – alkali stress .....	<i>Jiao Dezhi, et al</i> (1)
Research status and prospects of China's maize hole – fertilizing device .....	<i>Liu Zhengdao, et al</i> (5)
Research progress on non – destructive detection methods of seed germination rate .....	<i>Cui Huawei, et al</i> (9)
Current status and prospects of ecological roles and natural products of endophytes in plants .....	<i>Guo Binhui</i> (13)
Research progress and developing strategies of ecological effects of paddy – upland crop rotation .....	<i>Liu Yizhen, et al</i> (19)
SCD gene and fatty acid metabolism in pigs; a review .....	<i>Cai Gangzhi, et al</i> (24)
Application of CRISPR/Cas9 technology in rice and wheat genetic improvement; a review .....	<i>Ma Sishuang, et al</i> (29)
Research progress of mung bean yellow mosaic disease .....	<i>Wu Ranran, et al</i> (33)
Recent advances on diseases and insect pests of <i>Casuarina</i> spp. and their latest prevention .....	<i>Xie Yinyan, et al</i> (36)
Research progress on breeding of waxy foxtail millet .....	<i>Yang Huiqing, et al</i> (41)
Application of pullulan in food preservation and biomedicine; a review .....	<i>Sun Hua, et al</i> (48)
Research progress of watermelon and melon rootstock breeding .....	<i>You Xuesong, et al</i> (52)
Walnut allelopathy and its application prospects; a review .....	<i>Ma Hongye, et al</i> (57)
Research progress of dry resistance of cotton .....	<i>Li Tengyu, et al</i> (64)
Research progress on zinc biofortification in potato .....	<i>Li Chengchen, et al</i> (69)
Research progress on <i>Camellia oleifera</i> diseases and their prevention and control .....	<i>Shan Tijiang, et al</i> (75)

### Bio-technology

Effects of culture conditions on activities of three protective enzymes in cassava embryogenic callus .....	<i>Li Ping, et al</i> (80)
Cloning and functional marker development of <i>CCAI</i> gene related to flowering time in <i>Brassica rapa</i> .....	<i>Liu Dongrang, et al</i> (84)
Study on high frequency plant regeneration of different explants of creeping bentgrass .....	<i>Bao Rongjing, et al</i> (91)
Extraction and identification of total peptides from cotton roots by nano LC – MS/MS analysis .....	<i>Yuan Na, et al</i> (95)
Cloning and sequence analysis of <i>SI</i> gene of three porcine epidemic diarrhea virus strains .....	<i>Wang Jing, et al</i> (99)
Cloning and expression vector construction of <i>MinSPP</i> gene from mango .....	<i>Bai Beibei, et al</i> (103)

### Genetics and Breeding • Tillage and Cultivation

Changes of root morphology and physiological indices of wheat at seedling stage under urea stress with different concentrations .....	<i>Shan Zhe, et al</i> (108)
Breeding and cultivation techniques of new semi – winter wheat cultivar “Nongmai No. 1” .....	<i>Xiao Qun, et al</i> (112)
Effects of low phosphorus stress on growth and physiological characteristics of sugarcane seedlings .....	<i>Ke Ye, et al</i> (114)
Influences of sulfur on yield traits and sulfur use efficiency of varied rapeseed cultivars .....	<i>Wang Rui, et al</i> (118)

Effects of vermicompost on seedling growth and photosynthetic pigment content of *Zea mays* L. under salt stress ..... Zhang Hao, et al(122)

Plant Protection

Morphological observation and resistance identification of *Ustilago coicis* Brefeld in fields ..... Luo Kai, et al(126)

Determination of indoor virulence of seven fungicides against *Colletotrichum gloeosporioides* and *Botrytis cinerea* ..... Wu Jie, et al(129)

Biological characteristics of *Colletotrichum chlorophyte* and laboratory toxicity test of its control agents ..... Liu Yixian, et al(133)

Indoor virulence and field control effect of different pesticides on greenhouse cucumber target spot disease in Yancheng, Jiangsu Province ..... Xu Daxun, et al(138)

Horticulture and Forestry

Effects of exogenous nitric oxide (NO) on cold resistance of *Camellia japonica* ..... Zhou Lin, et al(142)

Application of color aesthetics in northern garden green space ..... Bai Xiaoxia(148)

Effect of shading treatment on growth of *Pyrostegia venusta* ..... LüBinyang, et al(152)

Effects of feather biodegradation fluid on Chinese cabbage growth and substrate nutrient ..... Wei Qishun, et al(156)

Study on leaf anatomical structure of two *Thalictrum* species ..... Zhang Youmin, et al(160)

Evaluation of drought resistance of six rhododendron varieties ..... Zheng Ying, et al(163)

Physiological responses of *Ligustrum lucidum* to low temperature in winter ..... Gao Shutao, et al(168)

Impacts of sod cultivation on soil micro elements and leaf nutrient absorption of lane late navel orange in southern Jiangxi ..... Zhu Jing, et al(172)

Effects of burial depth on annual growth and nutrient status of autumn sowing *Jatropha curcas* L. .... Wei Dongping, et al(177)

Influences of different application rate of ammonium nitrate on growth and nutrient element absorption of *Poa pratensis* L. .... Liu Ruixia, et al(181)

Husbandry and Veterinary · Aquaculture and Sericulture

Effect of LED light quality on antioxidant components of *Spirulina platensis* ..... Lan Rong, et al(184)

Morphological characteristics of *Schizothorax biddulphi* in Cherchen River of Xinjiang area ..... Yang Zhijun, et al(188)

Genetic variation of three selective breeding populations of blunt snout bream (*Megalobrama amblycephala*) based on mitochondrial DNA control region sequences ..... Tang Shoujie, et al(191)

Clinical and laboratory diagnosis of dairy donkey mastitis in a large – scale donkey farm in Xinjiang area ..... Gao Jingwen, et al(196)

Marbling segmentation of pork based on RGB color space ..... Qian Rong, et al(200)

Effects of simultaneous exposure to selenium and cadmium on selenium and cadmium in eggs and laying hens ..... Chen Dawei, et al(203)

Storage and Processing · Detection

Comparison of chemical components and organoleptic quality between Xinyang Maojian tea of Golden leaf and Xinyang group ..... Yang Zhuan, et al(206)

Influence of surface mud on storage quality of Chinese water chestnut ..... Zhang Qiao, et al(209)

Chemical composition changes in process of raw tobacco fermentation .....	<i>Ye Jianbin,et al</i> (212)
Rapid screening of residues of 2,4 – dichlorophenoxyacetic acid in citrus peel by GC – ECD .....	<i>Zheng Zhifu,et al</i> (218)
Study on ultrasound – assisted extraction of polysaccharides from <i>Polygonatum cyrtanema</i> and its biological activity .....	<i>Lin Zhiluan,et al</i> (221)

## Agricultural Engineering and Information Technology

Pearl color feature extraction and recognition based on machine vision .....	<i>Ye Jiaying,et al</i> (226)
Flower species identification based on deep transfer learning model .....	<i>Liu Jiazheng</i> (231)
Structural design of a monorail suspended tea picker and its simulation analysis of ventilation tube flow field .....	<i>Ouyang Aiguo,et al</i> (236)
Design and experiment of comprehensive reduction equipment for soil continuous cropping obstacles .....	<i>Lu Daipeng,et al</i> (241)
Relationship between physical parameters and shear strength of maggots stool particles group .....	<i>Xu Li,et al</i> (248)
Design and test of self – propelled seed metering device test car .....	<i>Wang Xudong,et al</i> (251)
Red edge parameters and SPAD inversion model of rapeseed based on canopy hyperspectral data .....	<i>Zhang Rui,et al</i> (255)

## Resources and Environment

Spatial distribution characteristics and health risk assessment of Cd in soil in Beijing plain .....	<i>Yang Xueling,et al</i> (260)
Effects of different fertilization treatments on microflora of organic planting soils .....	<i>Wang Chao,et al</i> (266)
Study on applicability of reference crop evapotranspiration calculation model in Xinjiang arid area .....	<i>Fan Xiangpeng,et al</i> (273)
Study on evolution characteristics of urban land use in Henan Province based on GIS and information entropy method .....	<i>Lu Chunyang,et al</i> (281)
Zoning simulation of land use change based on GWR – CLUE – S model .....	<i>Cui Xuesen,et al</i> (287)
Mechanism of Cd( II ) biosorption by cadmium – tolerant <i>Bacillus</i> sp. ....	<i>Yu Xuemei,et al</i> (293)
Sensitivity analysis of reference crop evapotranspiration in recent 56 years in Southwestern China .....	<i>Ni Ningqi,et al</i> (298)
Soil quality evaluation of cultivated land in Changchun City based on minimum dataset .....	<i>Yang Limin,et al</i> (305)

## Agricultural Economy and Management

Study on employment quality evaluation system for new generation of migrant workers .....	<i>Chen Wanming,et al</i> (311)
Construction and empirical study of food safety evaluation index system .....	<i>Hu Ling,et al</i> (316)
Determination of lagging between agricultural sci – tech input and output based on gray incidence and DEA efficiency measurement .....	<i>Dong Fenyi,et al</i> (322)
Factors affecting farmers’ planting willingness under agricultural policy changes—Taking policy cancellation of temporary storage for rapeseeds as an example .....	<i>Liu Cheng,et al</i> (328)
Influences of resource endowments and industrial agglomeration on competitiveness of agricultural industry cluster .....	<i>Hao Yanna</i> (333)
Case evaluation and analysis of scientific and technological achievements advertising design with outstanding innovation value elements .....	<i>Shen Hongyou</i> (338)
Analysis of coordinated development of China’s new urbanization quality and green economy efficiency .....	<i>Zhu Jinhe,et al</i> (341)