

# 江苏农业科学

第45卷 第4期 2017年2月20日

## 目次

### ●专论与综述

- 玉米抗茎腐病研究进展及其鉴定与育种方法探讨 ..... 石明亮,黄小兰,陆虎华,等(1)
- 气象驱动生态修复技术探讨 ..... 杨伟超,高吉喜,田美荣,等(5)
- 我国刺鳅生物学研究进展 ..... 赵子明,刘美剑(9)
- 离子液体对水生生物的毒性作用研究进展 ..... 葛泰根,郭燕婷,刘莉云,等(13)

### ●生物技术

- 苏云金芽孢杆菌及 *vip* 基因在不同自然环境中分布情况的比较 ..... 李 帅,刘荣梅,李海涛,等(18)
- 芒果 *ANR* 基因的克隆及其表达分析 ..... 李先良,赵志常,高爱平,等(22)
- 黄瓜耐低氮相关基因 *CsAOC3* 的克隆及表达分析 ..... 薛存宝,范莲雪,张 铅,等(26)
- 蓝莓组培苗瓶外扦插生根的研究 ..... 王雪娇,代志国,高庆玉,等(30)
- 铁皮石斛总 RNA 提取方法的比较研究 ..... 张志勇,阳 静,齐泽民(33)
- 蝴蝶兰小麻雀的组培快繁技术 ..... 漆子钰,陈俊晖,林志刚,等(35)
- 1 种简单有效的根际土壤微生物 DNA 提取方法 ..... 郑道君,张冬明,吉清妹,等(39)

### ●遗传育种与耕作栽培

- 秸秆腐解剂对麦秸腐解速率及水稻产量的影响 ..... 胡宇容,陈留根,郭 智,等(41)
- 盐碱胁迫对不同水稻品种抗逆和抗瘟性相关酶的影响 ..... 徐春莹,张亚玲,王 丹,等(44)
- 籼稻复交  $F_1$  花药培养力的提高技术 ..... 刘 凯,唐红生,严国红,等(47)
- 干旱胁迫对不同水稻品种抗逆性和抗瘟性相关酶的影响 ..... 王 丹,张亚玲,徐春莹,等(49)
- 6 个适合广西种植的水稻品种对镉的累积差异 ..... 唐云舒,刘 杰,卜永辉,等(52)
- 气候变化对河南省大豆产量的影响分析 ..... 李香颜,张金平(55)
- 不同类型高粱与环境的相互作用关系 ..... 李欣禹,罗 峰,刘惠芬,等(59)
- 9E 型细胞质甜高粱杂交种辽甜 15 选育及栽培技术 ..... 王艳秋,张 飞,卢 峰,等(64)

### ●植物保护

- 北疆早熟棉区棉花黄萎病菌的生物学特性 ..... 惠 慧,张学坤,赵建军,等(66)
- 新疆棉花黄萎病菌生理型鉴定 ..... 陈民志,张海萍,曲延英,等(70)
- 蛋白质对橘小实蝇生殖的影响 ..... 杜迎刚,季清娥,陈家骅,等(73)
- 银杏酚酸与印楝素及其复合混配剂对小菜蛾的毒效 ..... 金党琴(76)
- 氮磷钾肥对萱草叶枯病发生的影响 ..... 余月书,吴 浩,李逸飞,等(78)
- 烟草野火病对烟叶产量产值及化学成分的影响 ..... 谷纪涛,丁 伟,余永旭,等(81)

戊唑醇防治小麦赤霉病技术 ..... 刘福海,张 怡,沈迎春,等(84)

●园艺与林学

多胺及其合成抑制剂对旱胁迫下杏幼苗叶片光合作用和游离态多胺含量的影响 ..... 王尚堃,孙玲凌(88)

枣树品种早脆王雄性不育的发现与鉴定 ..... 李百云,李 慧,魏天军(91)

大岩桐试管正常苗与玻璃化苗叶表结构比较 ..... 韦梅琴,唐 楠,张文莲,等(93)

萘乙酸·吲哚丁酸促进杨树生根试验 ..... 贾新社,袁文丽(96)

甘蔗离体抗旱突变体的筛选及生理特性 ..... 蒙秋伊,罗 凯,刘鹏飞,等(99)

毛竹组织培养中成熟种子消毒方法 ..... 江 涛,李晨曦,陈 磊,等(103)

种子引发对盐碱地夏枯草出苗质量的影响 ..... 朱文彬,王长林(106)

龟裂秃马勃的分子鉴定及生物学特性 ..... 田亚琴,牛玉蓉,刘 宇,等(109)

铁皮石斛仿生栽培中不同附生树种和栽培基质的效应 ..... 袁颖丹,李 志,胡冬南,等(112)

紫薇内轮花药繁殖策略 ..... 王 昊,蔡卫佳,阮倩倩,等(115)

高寒冻土层地区不同土壤改良方式对花叶海棠生长的影响 ..... 袁雅丽,李 焱,司剑华(117)

不同种植基地土壤养分对黔产何首乌品质的影响 ..... 刘 晗,何腾兵,樊 博,等(121)

●畜牧兽医与水产蚕桑

青钱柳多糖对高脂血症小鼠 *SOD*、*GSH-Px*、*CAT* 基因 mRNA 表达的影响  
..... 赵 静,吴 茹,李 楠,等(124)

不同因素对初产奶牛繁殖力的影响 ..... 扈光辉,扈光强,郑 鹏,等(128)

盐胁迫下外源钙对苜蓿幼苗叶片离子含量的影响 ..... 李 红,李 波,杨 翌(131)

外源化感物质阿魏酸对紫云英幼苗生长、根际土壤酶活性、微生物数量及土壤养分的影响  
..... 李春龙,韩春梅,叶少平,等(134)

●贮藏加工与检测分析

柚皮黄酮的提取工艺及红外光谱分析 ..... 余先纯,王向军(137)

白薇提取物的抗氧化和抑菌活性 ..... 彭 旋,陈楚英,陈金印,等(140)

淮山多糖超声辅助提取及清除超氧阴离子自由基的作用 ..... 胡月芳(144)

基于近红外光谱法快速检测藜麦淀粉含量 ..... 曹晓宁,田 翔,赵小娟,等(147)

微波辅助酶解提取三七总皂苷 ..... 杨庆稳,李洪山,雍 康,等(149)

高效液相色谱法测定土壤中麦角固醇的含量 ..... 乔 洁,张春丹,毕利东,等(153)

钙添加剂和稳定剂对高钙液态奶稳定性的影响 ..... 姚玉才,黄自苏,周剑忠,等(156)

●农业工程与信息技术

基于视觉图像处理的农业机械自主导航方案 ..... 牟丽莎,彭莉娟(159)

HJ-1 星 CCD 数据多次分类反演夏收作物油菜与小麦的空间分布 ..... 王有宁,覃 燕,刘 牛,等(163)

新型波纹式圆盘破茬刀的设计与优化 ..... 韦丽君,庠国辉,尹晓鹏(166)

基于图像灰度直方图特征的草莓病虫害识别 ..... 牛 冲,牛昱光,李 寒,等(169)

基于有限元的往复式刀具柠条平茬仿真及优化 ..... 邹德健,裴承慧,刘志刚,等(172)

深施型变量式钻洞-液料施肥机的研制 ..... 王 远,郑 宇,郭小艳,等(177)

基于特征点混沌算法的农产品图像数字水印实现 ..... 王洪涛,荆园园(179)

基于改进粒子群优化极限学习机的养殖氨态氮含量预测模型 ..... 徐大明,杜永贵,孙传恒,等(183)

气流方向对密集烤房烘烤性能及烟叶烘烤质量的影响 ..... 王传义,高华锋,牛玉德,等(187)

基于 SolidWorks 的多功能烟草移栽机的结构设计 ..... 刘立新,杨雪玲,刘家平,等(191)

全球移动通信系统(GSM)和单片机技术在家庭农场高效管理中的应用 ..... 赵 方,苏咏梅(194)

●资源与环境

利用土壤表层磁化率监测区域农田重金属 ..... 马瑞峻,黄 倩,龚海明,等(198)

内蒙古自治区耕地利用效益时空特征分析 ..... 聂学海,宋 戈,王 蓓,等(206)

武功山不同海拔高度土壤速效钾与植物全钾分布格局及相关性 ..... 郑 翔,李真真,郑利亚,等(211)

耐铅细菌分离鉴定及生物学特性 ..... 赵娟娟,吴荣荣,李志涛(215)

河北省南和县耕地集约利用评价及障碍度诊断 ..... 孙英彪,贺文龙,赵瑞东,等(217)

1 株高产甘油酸菌株的筛选与鉴定 ..... 方亚坤,周 配,张 磊,等(224)

基于全球定位系统(GIS)的云南省铁皮石斛种植适宜性区划 ..... 刘德锋,彭 琳,郜鲁涛,等(227)

京津保农业生态系统的能值分析 ..... 宋 丹,李 丁,王岳光,等(231)

微生态发酵床功能菌株产孢条件的优化 ..... 秦艳梅,张爱民(235)

基于可变模糊和灰色理论的贵州省农业旱灾脆弱性评价 ..... 黄路梅,梁 虹,焦树林,等(239)

霾与清洁天气的特征及气象影响因素分析 ..... 张 莹,唐 迪,赵燕华,等(244)

●农业经济与管理

信息化对城乡一体化影响的作用机理与实践路径 ..... 李 瑾,马 晨,冯 献(251)

农村集体经营性建设用地入市障碍因素分析——基于利益主体视角 ..... 王秋兵,赫静文,董秀茹,等(255)

基于 DEA 模型的我国棉花全要素生产率分析 ..... 王 力,周亚娟(258)

基于 DEA 模型的农业科技园区运营效率评价——以黑龙江省 34 个省级农业科技园区为例  
..... 王俊凤,刘松洁,闫 文,等(262)

顾客导向型乳制品零售商 O2O 双渠道销售决策 ..... 白世贞,陈晓丽,陈化飞(267)

“四化”同步发展背景下农村电子商务发展模式 ..... 段禄峰,唐文文(272)

农村集体经营性建设用地入市途径选择研究——以黑龙江省安达市为例 ..... 董秀茹,张 宇,卢巍巍(275)

我国蔬菜价格保险政策面临的问题与对策研究 ..... 李辉尚,马娟娟,孔繁涛,等(279)

基于产业集群的农产品地理标志促进区域经济发展——以辽宁省为例 ..... 刘 丽(282)

基于经济学角度的农产品产供销一体化动因 ..... 霍 红,赵思琪(285)

新疆红枣产业供应链管理 ..... 李志刚,姚婷婷(288)

“一村一品一店”农村电商发展模式浅析——以江苏宿迁市宿豫区为例 ..... 王 超,龙飞扬(293)

中国 16 省域林业产业总量、结构与区位竞争力动态研究——基于动态偏离 - 份额方法  
..... 廖 冰,张智光(295)

我国农业生态效率时空格局差序化分析——基于 DEA - ESDA 模型..... 林锦彬,刘飞翔,郑金贵(302)

苏州市“十三五”都市型现代农业发展 SWOT 分析 ..... 马国胜,李 玲,宣雄智(307)

信任视角下消费者可追溯猪肉购买意愿实证分析——基于结构方程模型 ..... 朱冬静,王 凯(311)

# JIANGSU AGRICULTURAL SCIENCES

Vol. 45 No. 4 February 20 2017

## CONTENTS

### Monograph and Review

- Research progress, resistance identification and breeding strategy of maize stalk rot ..... Shi Mingliang, et al(1)
- On meteorological – driven ecological restoration technology ..... Yang Weichao, et al(5)
- Research progress of biology of *Mastacembelus aculeatus* in China ..... Zhao Ziming, et al(9)
- Research progress of toxicology of ionic liquids to aquatic organisms ..... Ge Taigen, et al(13)

### Bio-technology

- Geographical distribution of *Bacillus thuringiensis* and *vip3* genes in different natural environment ..... Li Shuai, et al(18)
- Cloning and expression analysis of *ANR* gene from mango (*Mangifera indica*) ..... Li Xianliang, et al(22)
- Cloning and expression analysis of low nitrogen tolerance related gene *CsAOC3* in cucumber ..... Xue Cunbao, et al(26)
- Study on rooting *in vitro* of blueberry plantlets ..... Wang Xuejiao, et al(30)
- Comparative study on extraction methods of total RNA from *Dendrobium officinale* ..... Zhang Zhiyong, et al(33)
- Study on tissue culture and rapid propagation techniques of *Phalaenopsis* “Little Sparrows” ..... Qi Ziyu, et al(35)
- An effective and simple extraction method of DNA from rhizosphere soil microorganism ..... Zheng Daojun, et al(39)

### Genetics and Breeding · Tillage and Cultivation

- Effects of effective microorganisms on wheat straw decomposition rate and rice yield ..... Hu Yurong, et al(41)
- Effects of saline – alkali stress on stress tolerance and blast resistance related enzymes of different rice varieties  
..... Xu Chunying, et al(44)
- Improvement of anther culture ability of indica hybrid rice F<sub>1</sub> ..... Liu Kai, et al(47)
- Effects of drought stress on stress tolerance and blast resistance related enzymes of different rice varieties ... Wang Dan, et al(49)
- Difference of cadmium accumulation of six rice cultivars suitable for planting in Guangxi area ..... Tang Yunshu, et al(52)
- Analysis of effect of climate change on soybean yield in Henan Province ..... Li Xiangyan, et al(55)
- Interaction analysis of different sorghum lines and environment ..... Li Xinyu, et al(59)
- Breeding and cultivation technology of sweet sorghum cultivar “Liaotian No. 15” with 9E cytoplasm sterility  
..... Wang Yanqiu, et al(64)

### Plant Protection

- Study on biological characteristics of *Verticillium dahliae* in early – maturing cotton area of Northern Xinjiang  
..... Xi Hui, et al(66)
- Physiological type identification of *Verticillium dahliae* in Xinjiang area ..... Chen Minzhi, et al(70)
- Effect of protein on reproduction of oriental fruit fly, *Bactrocera dorsalis* ..... Du Yinggang, et al(73)
- Toxicity of ginkgolic acids and azadirachtin and their admixture against *Plutella xylostella* L. .... Jin Dangqin (76)
- Influences of nitrogen, phosphorus and potassium fertilizers on occurrence of *Hemerocallis* leaf blight ..... Yu Yueshu, et al(78)
- Effect of tobacco wildfire disease on yield, output value and chemical components of tobacco leaves ..... Gu Jitao, et al(81)
- Technical inquiry of tebuconazole controlling wheat scab ..... Liu Fuhai, et al(84)

### Horticulture and Forestry

- Effects of polyamine and its synthesis inhibitors on leaf photosynthesis and free polyamine content of apricot seedling under  
drought stress ..... Wang Shangkun, et al(88)

Discovery and identification of male sterility of Chinese jujube cultivar “Zaocuiwang” ..... Li Baiyun, et al(91)

Comparison of leaf epidermis structure of normal plantlets and vitrified plantlets during tissue culture of *Sinningia speciosa*  
..... Wei Meiqin, et al(93)

Induction of poplar rooting by naphthylacetic acid · indolebutyric acid (NAA · IBA) ..... Jia Xinshe, et al(96)

Screening and physiological characteristics of drought – resistant mutant of sugarcane *in vitro* ..... Meng Qiuyi, et al(99)

Disinfection method of mature seeds during tissue culture of *Phyllostachys pubescens* ..... Jiang Tao, et al(103)

Effect of seed priming on seedling quality of *Prunella vulgaris* on saline – alkali land ..... Zhu Wenbing, et al(106)

Molecular identification and biological characteristics of *Calvatia caelata* ..... Tian Yaqin, et al(109)

Influences of different epiphytic trees and cultivated substrates on bionic cultivation of *Dendrobium officinal*  
..... Yuan Yingdan, et al(112)

Reproductive strategy of inner anther of *Lagerstroemia Indica* ..... Wang Hao, et al(115)

Effect of different soil improvement methods on growth of *Malus transitoria* in alpine frozen soil region  
..... Yuan Yali, et al(117)

Effects of soil nutrients in different planting base on quality of *Fallopia multiflora* from Guizhou area ..... Liu Han, et al(121)

**Husbandry and Veterinary · Aquaculture and Sericulture**

Effects of polysaccharide from *Cyclocarya paliurus* on *SOD*, *GSH – Px* and *CAT* mRNA expression of hyperlipidemic mice  
..... Zhao Jing, et al(124)

Influences of different factors on fecundity of primiparous cows ..... Hu Guanghui, et al(128)

Effects of exogenous Ca on leaf ion content of alfalfa seedlings ..... Li Hong, et al(131)

Influences of ferulic acid on *Astragalus sinicus* seedling growth, rhizosphere soil enzyme activity, microbial population and  
soil nutrient ..... Li Chunlong, et al(134)

**Storage and Processing · Detection**

Extraction progress and infrared spectroscopic analysis of pomelo flavone ..... Yu Xianchun, et al(137)

Antioxidant and antifungi activities of *Cynanchum atratum* extracts ..... Peng Xuan, et al(140)

Ultrasonic – assisted extraction of polysaccharide from common yam rhizome and its effects on scavenging of superoxide anion  
radical ..... Hu Yuefang(144)

Rapid detection of starch contents in quinoa based on near infrared spectroscopy ..... Cao Xiaoning, et al(147)

Microwave – assisted enzymic extraction of total saponins in *Panax notoginseng* ..... Yang Qingwen, et al(149)

Determination of ergosterol contents in soil sample by high performance liquid chromatography ..... Qiao Jie, et al(153)

Effects of calcium additives and stabilizer on stability of high calcium liquid milk ..... Yao Yucui, et al(156)

**Agricultural Engineering and Information Technology**

Agricultural machinery autonomous navigation scheme based on visual image processing ..... Mou Lisha, et al(159)

Spatial distribution of summer harvesting crops rape and wheat based on multiple classification inversion of HJ – 1 CCD data  
..... Wang Youning, et al(163)

Design and optimization of a new type stubble – cutting disc cutter ..... Wei Lijun, et al(166)

Recognition of diseases and insect pests of strawberry based on image gray histogram feature ..... Niu Chong, et al(169)

Simulation and optimization of reciprocating cutter based on finite element ..... Zou Dejian, et al(172)

Development of variable deep fertilization liquid fertilizer applicator with drilling soil cave ..... Wang Yuan, et al(177)

Realization of agriculture products image watermarking based on feature and chaos algorithm ..... Wang Hongtao, et al(179)

Aquaculture ammonia nitrogen concentration prediction model based on improved particle swarm optimization extreme learning  
machine ..... Xu Daming, et al(183)

Effects of airflow direction on curing capability of bulk curing barn and baking quality of tobacco leaves  
..... Wang Chuanyu, et al(187)

Structural design of multi – function tobacco transplanting machine based on SolidWorks ..... Liu Lixin, et al(191)

Application of short messaging and SCM technology in efficient management of family farm ..... Zhao Fang,et al(194)

Resources and Environment

Monitoring of heavy metals of area cropland using soil surface magnetic susceptibility ..... Ma Ruijun,et al(198)

Analysis of spatio – temporal characteristics of cultivated land use benefits in Inner Mongolia ..... Nie Xuehai,et al(206)

Distribution pattern and correlation of soil available potassium and plant total potassium in different altitude of Wugong Mountain ..... Zheng Xiang,et al(211)

Isolation, identification and biological characteristics of lead – resistant bacteria ..... Zhao Juanjuan,et al(215)

Evaluation of intensive cultivated land use and diagnosis of obstacle degree in Nanhe County,Hebei Province ..... Sun Yingbiao,et al(217)

Screening and identification of a strain with high yield of glyceric acid ..... Fang Yakun,et al(224)

Study on planting suitability zoning of *Dendrobium officinale* in Yunnan Province based on GIS ..... Liu Defeng,et al(227)

Emergy analysis of agro – ecosystem in Beijing – Tianjin – Baoding areas ..... Song Dan,et al(231)

Optimization of spore – forming conditions of functional bacterial strain in microecology fermentation bed ..... Qin Yanmei,et al(235)

Assessment of agricultural drought vulnerability based on variable fuzzy and gray theory in Guizhou Province ..... Huang Lumei,et al(239)

Characteristics of haze and cleaning weather and analysis of meteorological influencing factors ..... Zhang Ying,et al(244)

Agricultural Economy and Management

Mechanism and practice of effect of informatization on integration of urban and rural development ..... Li Jin,et al(251)

Analysis of obstacles of transfer of rural collective business constructive land—Based on stakeholders perspective ..... Wang Qiubing,et al(255)

Measurement and analysis of total factor productivity of cotton in China based on DEA model ..... Wang Li,et al(258)

Evaluation of operational efficiency of agricultural science and technology park based on dea model—Taking 34 provincial agricultural science and technology parks in Heilongjiang Province as examples ..... Wang Junfeng,et al(262)

Study on sales decision of dual channel customer oriented dairy retailer O2O ..... Bai Shizhen,et al(267)

Rural E – commerce development model under background of “four modernizations” synchronous development ..... Duan Lufeng,et al(272)

Study on route choices of entering market of rural collectively operating construction land—Taking Anda City of Heilongjiang Province as an example ..... Dong Xiuru,et al(275)

Study on issues and strategies of China’s vegetable prices insurance policies ..... Li Huishang,et al(279)

Promotion of regional economic development based on industrial cluster of agricultural products geographical indications —Taking Liaoning Province as an example ..... Liu Li (282)

Study on agricultural integration of manufacturing and marketing based on economic perspective ..... Huohong,et al(285)

Study on supply chain management of jujube industry in Xinjiang area ..... Li Zhigang,et al(288)

“One Village One Product One Shop” model of rural E – commerce development—Taking Suyu District,Suqian City, Jiangsu Province as an example ..... Wang Chao,et al(293)

Dynamic study on forestry industry total amount,structure and competitiveness of China’s sixteen provinces —Based on dynamic shift share method ..... Liao Bing,et al(295)

Diversity – orderly analysis of spatial – temporal pattern of China’s agricultural eco – efficiency—Base on DEA – ESDA model ..... Lin Jinbin,et al(302)

SWOT analysis of modern urban agriculture development in Suzhou City during the 13th five – year plan ..... Ma Guosheng,et al(307)

Study on consumers’ willingness to purchase pork from perspective of trust—Base on structural equation model ..... Zhu Dongjing,et al(311)