



ISSN 0578-1752
CODEN CKNYAR

中国农业科学

SCIENTIA AGRICULTURA SINICA

第 52 卷 第 23 期

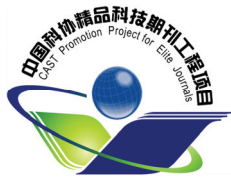
Vol. 52 No. 23

2019



中国农业科学院
中国农学会

主办



目次

作物遗传育种·种质资源·分子遗传学

- 4191-4200 doi: 10.3864/j.issn.0578-1752.2019.23.001
小麦种质资源耐热性评价
王小波 关攀峰 辛明明 汪永法 陈希勇 赵爱菊 刘曼双 李红霞 张明义 逯腊虎 魏亦勤 刘旺清 张金波
倪中福 姚颖垠 胡兆荣 彭惠茹 孙其信
- 4201-4214 doi: 10.3864/j.issn.0578-1752.2019.23.002
青稞种质资源表型性状的遗传多样性分析及综合评价
白羿雄 郑雪晴 姚有华 姚晓华 吴昆仑
- 4215-4227 doi: 10.3864/j.issn.0578-1752.2019.23.003
磷胁迫下羊草的响应及磷响应相关基因表达分析
万东莉 侯向阳 丁勇 任卫波 王凯 李西良 万永青

耕作栽培·生理生化·农业信息技术

- 4228-4239 doi: 10.3864/j.issn.0578-1752.2019.23.004
侧深施氮对机插水稻产量形成及氮素利用的影响
朱从桦 张玉屏 向镜 张义凯 武辉 王亚梁 朱德峰 陈惠哲
- 4240-4250 doi: 10.3864/j.issn.0578-1752.2019.23.005
超级早稻钵形毯状秧苗机插效果及产量形成
陈惠哲 徐一成 张玉屏 向镜 张义凯 朱德峰
- 4251-4261 doi: 10.3864/j.issn.0578-1752.2019.23.006
小麦籽粒灌浆与脱水特性
朱冬梅 王慧 刘大同 高德荣 吕国锋 王君婵 高致富 陆成彬

植物保护

- 4262-4273 doi: 10.3864/j.issn.0578-1752.2019.23.007
黑龙江省稻瘟病菌无毒基因 *AVR-Pib*、*AVR-Pik* 和 *AvrPiz-t* 的检测与分析
孟峰 张亚玲 靳学慧 张晓玉 姜军
- 4274-4284 doi: 10.3864/j.issn.0578-1752.2019.23.008
利用 TRV-HIGS 技术鉴定核盘菌致病相关的分泌蛋白基因
远俊虎 丁一娟 杨文静 闫宝琴 柴亚茹 梅家琴 钱伟

土壤肥料·节水灌溉·农业生态环境

- 4285-4295 doi: 10.3864/j.issn.0578-1752.2019.23.009
石灰用量对水稻油菜轮作区土壤酸度、土壤养分及作物生长的影响
闫志浩 胡志华 王士超 槐圣昌 武红亮 王瑾瑜 邢婷婷 余喜初 李大明 卢昌艾
- 4296-4308 doi: 10.3864/j.issn.0578-1752.2019.23.010
基于 SPEI 和 MI 分析陕西省干旱特征及趋势变化
丁怡博 徐家屯 李亮 蔡焕杰 孙亚楠

4309-4319 doi: 10.3864/j.issn.0578-1752.2019.23.011
湖北省农业碳排放的时空特征及经济关联性
李波 杜建国 刘雪琪

专题：苹果分子生物学

4320-4321 doi: 10.3864/j.issn.0578-1752.2019.23.012
导读：加强分子生物学研究，促进苹果产业持续发展
丛佩华 张彩霞 韩晓蕾 张利义

4322-4332 doi: 10.3864/j.issn.0578-1752.2019.23.013
苹果 *LIM* 基因家族生物信息学及表达分析
袁高鹏 韩晓蕾 卞书迅 张利义 田义 张彩霞 丛佩华

4333-4349 doi: 10.3864/j.issn.0578-1752.2019.23.014
苹果 NLP (Nin-Like Protein) 转录因子基因家族全基因组鉴定及表达模式分析
王寻 陈西霞 李宏亮 张富军 赵先炎 韩月彭 王小非 郝玉金

4350-4363 doi: 10.3864/j.issn.0578-1752.2019.23.015
柱状苹果 *Co* 基因的筛选与候选基因分析
白团辉 李莉 郑先波 王苗苗 宋尚伟 焦健 宋春晖

4364-4373 doi: 10.3864/j.issn.0578-1752.2019.23.016
苹果 U6 启动子的克隆及功能分析
卞书迅 韩晓蕾 袁高鹏 张利义 田义 张彩霞 丛佩华

4374-4385 doi: 10.3864/j.issn.0578-1752.2019.23.017
苹果乙烯响应因子 *MdERF72* 对非生物胁迫的响应
王佳慧 顾凯迪 王楚堃 由春香 胡大刚 郝玉金

专题：水禽疫病防控

4386-4389 doi: 10.3864/j.issn.0578-1752.2019.23.018
导读：加快推进我国水禽疫病防控技术的研究
刘月焕

4390-4397 doi: 10.3864/j.issn.0578-1752.2019.23.019
UL56 基因下游 3513bp 对鸭肠炎病毒生物特性的影响
毛娅卿 张兵 王团结 侯力丹 黄小洁 刘丹 赵俊杰 李启红 王乐元 李俊平 杨承槐

4398-4405 doi: 10.3864/j.issn.0578-1752.2019.23.020
表达 H9 亚型禽流感病毒 HA 基因重组鸭肠炎病毒的构建
孙莹 张兵 李岭 黄小洁 侯力丹 刘丹 李启红 李俊平 王乐元 李慧姣 杨承槐

4406-4414 doi: 10.3864/j.issn.0578-1752.2019.23.021
4 株鸭坦布苏病毒的毒力、E 基因序列和抗原差异性
杨志远 段会娟 王小蕾 刘立新 赵际成 潘洁 刘月焕 林健

4415-4422 doi: 10.3864/j.issn.0578-1752.2019.23.022
鸭坦布苏病毒的血凝性
王小蕾 刘月焕 段会娟 刘立新 杨志远 赵际成 潘洁 刘瑞华 赵文奇 田方杰 吕金宝 林健

4423-4428 doi: 10.3864/j.issn.0578-1752.2019.23.023
鸭坦布苏病毒病灭活疫苗血清学试验与免疫攻毒保护试验的相关性
王小蕾 林健 杨志远 刘立新 段会娟 程慧敏 赵际成 潘洁 刘月焕

4429-4436 doi: 10.3864/j.issn.0578-1752.2019.23.024
鸭寡腺苷酸合成酶样蛋白原核表达及多克隆抗体制备
毕可然 李银 韩凯凯 赵冬敏 刘青涛 刘宇卓 黄欣梅 杨婧

CONTENTS

CROP GENETICS & BREEDING·GERMPLASM RESOURCES·MOLECULAR GENETICS

4191-4200 doi: 10.3864/j.issn.0578-1752.2019.23.001

Evaluation of Heat Tolerance in Wheat Germplasm Resources

WANG XiaoBo, GUAN PanFeng, XIN MingMing, WANG YongFa, CHEN XiYong, ZHAO AiJu, LIU ManShuang, LI HongXia, ZHANG MingYi, LU LaHu, WEI YiQin, LIU WangQing, ZHANG JinBo, NI ZhongFu, YAO YingYin, HU ZhaoRong, PENG HuiRu, SUN QiXin

4201-4214 doi: 10.3864/j.issn.0578-1752.2019.23.002

Genetic Diversity Analysis and Comprehensive Evaluation of Phenotypic Traits in Hulless Barley Germplasm Resources

BAI YiXiong, ZHENG XueQing, YAO YouHua, YAO XiaoHua, WU KunLun

4215-4227 doi: 10.3864/j.issn.0578-1752.2019.23.003

Response and the Expression of Pi-Responsive Genes in *Leymus chinensis* Under Inorganic Phosphate Treatment

WAN DongLi, HOU XiangYang, DING Yong, REN WeiBo, WANG Kai, LI XiLiang, WAN YongQing

TILLAGE & CULTIVATION·PHYSIOLOGY & BIOCHEMISTRY·AGRICULTURE INFORMATION TECHNOLOGY

4228-4239 doi: 10.3864/j.issn.0578-1752.2019.23.004

Effects of Side Deep Fertilization on Yield Formation and Nitrogen Utilization of Mechanized Transplanting RiceZHU CongHua, ZHANG YuPing, XIANG Jing, ZHANG YiKai, WU Hui¹, WANG YaLiang, ZHU DeFeng, CHEN HuiZhe

4240-4250 doi: 10.3864/j.issn.0578-1752.2019.23.005

Effect of Pot-Mat Seedling on the Quality of Machined Transplanting and Yield Formation of Super Early Rice

CHEN HuiZhe, XU YiCheng, ZHANG YuPing, XIANG Jing, ZHANG YiKai, ZHU DeFeng

4251-4261 doi: 10.3864/j.issn.0578-1752.2019.23.006

Characteristics of Grain Filling and Dehydration in Wheat

ZHU DongMei, WANG Hui, LIU DaTong, GAO DeRong, LÜ GuoFeng, WANG JunChan, GAO ZhiFu, LU ChengBi

PLANT PROTECTION

4262-4273 doi: 10.3864/j.issn.0578-1752.2019.23.007

Detection and Analysis of *Magnaporthe oryzae* Avirulence Genes *AVR-Pib*, *AVR-Pik* and *AvrPiz-t* in Heilongjiang Province

MENG Feng, ZHANG YaLing, JIN XueHui, ZHANG XiaoYu, JIANG Jun

4274-4284 doi: 10.3864/j.issn.0578-1752.2019.23.008

Identification of Genes Encoding Secretory Proteins Related to the Pathogenicity of *Sclerotinia sclerotiorum* Using TRV-HIGS

YUAN JunHu, DING YiJuan, YANG WenJing, YAN BaoQin, CHAI YaRu, MEI JiaQin, QIAN Wei

SOIL & FERTILIZER·WATER-SAVING IRRIGATION·AGROECOLOGY & ENVIRONMENT

4285-4295 doi: 10.3864/j.issn.0578-1752.2019.23.009

Effects of Lime Content on Soil Acidity, Soil Nutrients and Crop Growth in Rice-Rape Rotation System

YAN ZhiHao, HU ZhiHua, WANG ShiChao, HUAI ShengChang, WU HongLiang, WANG JinYu, XING TingTing, YU XiChu, LI DaMing, LU ChangAi

4296-4308 doi: 10.3864/j.issn.0578-1752.2019.23.010

Analysis of Drought Characteristics and Its Trend Change in Shaanxi Province Based on SPEI and MI

DING YiBo, XU JiaTun, LI Liang, CAI HuanJie, SUN YaNan

4309-4319 doi: 10.3864/j.issn.0578-1752.2019.23.011

Spatial-Temporal Characteristics and Economic Relevance of Agricultural Carbon Emissions in Hubei Province

LI Bo, DU JianGuo, LIU XueQi

SPECIAL FOCUS: MOLECULAR BIOLOGY OF APPLE

- 4320-4321 doi: 10.3864/j.issn.0578-1752.2019.23.012
Guidance: Strengthen the Research of Molecular Biology, Promote the Sustainable Development of Apple Industry
CONG PeiHua, ZHANG CaiXia, HAN XiaoLei, ZHANG LiYi
- 4322-4332 doi: 10.3864/j.issn.0578-1752.2019.23.013
Bioinformatics and Expression Analysis of the *LIM* Gene Family in Apple
YUAN GaoPeng, HAN XiaoLei, BIAN ShuXun, ZHANG LiYi, TIAN Yi, ZHANG CaiXia, CONG PeiHua
- 4333-4349 doi: 10.3864/j.issn.0578-1752.2019.23.014
Genome-Wide Identification and Expression Pattern Analysis of NLP (Nin-Like Protein) Transcription Factor Gene Family in Apple
WANG Xun, CHEN XiXia, LI HongLiang, ZHANG FuJun, ZHAO XianYan, HAN YuePeng, WANG XiaoFei, HAO YuJin
- 4350-4363 doi: 10.3864/j.issn.0578-1752.2019.23.015
Screening and Expression Analysis of Co Candidate Genes in Columnar Apple
BAI TuanHui, LI Li, ZHENG XianBo, WANG MiaoMiao, SONG ShangWei, JIAO Jian, SONG ChunHui
- 4364-4373 doi: 10.3864/j.issn.0578-1752.2019.23.016
Cloning and Functional Analysis of U6 Promoter in Apple
BIAN ShuXun, HAN XiaoLei, YUAN GaoPeng, ZHANG LiYi, TIAN Yi, ZHANG CaiXia, CONG PeiHua
- 4374-4385 doi: 10.3864/j.issn.0578-1752.2019.23.017
Analysis of Apple Ethylene Response Factor *MdERF72* to Abiotic Stresses
WANG JiaHui, GU KaiDi, WANG ChuKun, YOU ChunXiang, HU DaGang, HAO YuJin

SPECIAL FOCUS: PREVENTION AND CONTROL OF WATERFOWL INFECTIOUS DISEASE

- 4386-4389 doi: 10.3864/j.issn.0578-1752.2019.23.018
Guidance: Promoting the Research on Prevention and Control of Waterfowl Infectious Disease in China
LIU YueHuan
- 4390-4397 doi: 10.3864/j.issn.0578-1752.2019.23.019
The Effects of Downstream 3513bp of UL56 on Characterization of Duck Enteritis Virus
MAO YaQing, ZHANG Bing, WANG TuanJie, HOU LiDan, HUANG XiaoJie, LIU Dan, ZHAO JunJie, LI QiHong, WANG LeYuan, LI JunPing, YANG ChengHuai
- 4398-4405 doi: 10.3864/j.issn.0578-1752.2019.23.020
Construction of a Recombinant Duck Enteritis Virus Expressing Hemagglutinin of H9N2 Avian Influenza Virus
SUN Ying, ZHANG Bing, LI Ling, HUANG XiaoJie, HOU LiDan, LIU Dan, LI QiHong, LI JunPing, WANG LeYuan, LI HuiJiao, YANG ChengHuai
- 4406-4414 doi: 10.3864/j.issn.0578-1752.2019.23.021
Virulence, E Gene Sequence and Antigenic Difference of 4 Duck Tembusu Virus Isolations
YANG ZhiYuan, DUAN HuiJuan, WANG XiaoLei, LIU LiXin, ZHAO JiCheng, PAN Jie, LIU YueHuan, LIN Jian
- 4415-4422 doi: 10.3864/j.issn.0578-1752.2019.23.022
Hemagglutinating Activity of Duck Tembusu Virus
WANG XiaoLei, LIU YueHuan, DUAN HuiJuan, LIU LiXin, YANG ZhiYuan, ZHAO JiCheng, PAN Jie, LIU RuiHua, ZHAO WenQi, TIAN FangJie, LÜ JinBao, LIN Jian
- 4423-4428 doi: 10.3864/j.issn.0578-1752.2019.23.023
Correlation Research of the Serological Test (HI) and Challenge Test of Duck Tembusu Virus Inactivated Vaccine
WANG XiaoLei, LIN Jian, YANG ZhiYuan, LIU LiXin, DUAN HuiJuan, CHENG HuiMin, ZHAO JiCheng, PAN Jie, LIU YueHuan
- 4429-4436 doi: 10.3864/j.issn.0578-1752.2019.23.024
Prokaryotic Expression and Polyclonal antibody preparation of duck oligoadenylate synthase-like protein
BI KeRan, LI Yin, HAN KaiKai, ZHAO DongMin, LIU QingTao, LIU YuZhuo, HUANG XinMei, YANG Jing