



ACTA AGRONOMICA SINICA

第47卷 第10期 Vol. 47 No. 10



中国作物学会 中国农业科学院作物科学研究所 主办 Sponsored by Crop Science Society of China and Institute of Crop Sciences, CAAS

神学出版 社 出版 Published by Science Press 2021

作 物 学 报

(ZUOWU XUEBAO)

第 47 卷 第 10 期 2021 年 10 月

目 次

综述							
1843	黄淮海麦玉两熟区周年光温资源优化配置研究进展	周宝元 李从锋	葛均筑 赵 明	孙雪芳	韩玉玲	马 玮	丁在松
作物道	遗传育种・种质资源・分子遗传学						
1854	棉花花器官突变体的鉴定及候选基因的克隆	杨琴莉 黄楚珺 胡 艳	杨多凤 高 阳	丁林云 叶 莉	赵 汀 高梦涛	张 军 严孙艺	梅 欢 张天真
1863	水稻苗期根部性状的遗传分析和最长根长 QTL qLRL4 的精细定位	田 彪 董国军	丁仕林 胡光莲	刘朝雷 郭龙彪	阮班普 钱 前	姜洪真 高振宇	郭(锐
1874	花生荚果与种子相关性状 QTL 定位及与环境互作分析	孟鑫浩 侯名语	张靖男 杨鑫雷	崔顺立 刘立峰	Charles	Y. Chen	穆国俊
1891	小麦穗发芽性状的全基因组关联分析	谢 磊 耿洪伟	任毅	张新忠	王继庆	张志辉	石书兵
1903	玉米籽粒缺陷突变基因 dek54 的精细定位及候选基因分析	周 练 朱思颖	刘朝显 洪祥德	陈秋栏 熊雨涵	王文琴 蔡一林	姚顺	赵子堃
1913	叉柱棉 sHSP 基因家族的鉴定与特征分析	范 凯 林文雄	潘鑫峰	毛志君	叶方婷	李兆伟	林伟伟
1927	大环内酯类和高表达玉米 C_4 -PEPC 基因对水稻 耐旱性的影响	宋凝曦 谢寅峰	李霞	王 净	吴博晗	曹 悦	杨杰
1941	半夏 PtPAL 基因的克隆、表达与酶动力学分析	何潇	刘 兴	辛正琦	谢海艳	辛余凤	吴能表
耕作制	战培・生理生化						
1953	不同稻田综合种养模式下水稻产量形成特点及 其稻米品质和经济效益差异	车 阳 窦 志 张洪程	程 爽徐 强	田晋钰 胡雅杰	陶 钰 郭保卫	刘秋员 魏海燕	邢志鹏 高 辉
1966	缓释氮肥与尿素配施对机插杂交籼稻碳氮积累 的影响	吕腾飞 马 均	谌 洁	代 邹	马 鹏	杨志远	郑传刚
1978	大豆种植密度对玉米/大豆间作系统产量形成的 竞争效应分析	任媛媛	张莉	郁耀闯	张彦军	张岁岐	
1988	植物生长调节剂 S_{3307} 对苗期淹水胁迫下大豆生理特性和显微结构的影响	王诗雅 靳 丹	郑殿峰 刘美玲	冯乃杰 牟保民	梁喜龙	项洪涛	冯胜杰
2001	盐胁迫下外源 2,4-表油菜素内酯对颠茄氮代谢及 TAs 代谢的影响	辛正琦	代欢欢	辛余凤	何 潇	谢海艳	吴能表
2012	播期对机插杂交籼稻不同茎蘖部位稻穗枝梗数 和颖花数的影响	钟晓媛 陶有凤	邓 飞 任万军	陈多	田青兰	赵敏	王 丽
2028	基于作物生长监测诊断仪的双季稻叶干重监测 模型	李艳大 朱 艳	曹中盛 田永超	舒时富	孙滨峰	叶 春	黄俊宝
研究简报							
2036	结合 QTL-seq 和连锁分析发掘水稻中胚轴伸长相关 QTL	刘畅	孟云	刘金栋	王雅美	Guoyou	Ye
2045 2053	水稻基因 OsATS 的克隆及功能鉴定 青藏春冬麦区 93 份小麦地方种质条锈病抗性评 价及抗病基因分子鉴定	李晓旭 赵旭阳 李 伟	王 蕊 姚方杰 邓 梅	张利霞 龙 黎 李 豪	宋亚萌 王昱琦 陈国跃	田晓楠 康厚扬	葛荣朝 蒋云峰

ACTA AGRONOMICA SINICA

Vol. 47 No. 10 October 2021

CONTENTS

n	T .	71	I INA	T 7
ж	н ,	/	н	1 /1

1843 Research advance on optimizing annual distribution of solar and heat resources for double cropping system in the Yellow-Huaihe-Haihe Rivers plain ZHOU Bao-Yuan, GE Jun-Zhu, SUN Xue-Fang, HAN Yu-Ling, MA Wei, DING Zai-Song, LI Cong-Feng, and ZHAO Ming

CROP GENETICS & BREEDING • GERMPLASM RESOURCES • MOLECULAR GENETICS

- 1854 Identification of a cotton flower organ mutant 182-9 and cloning of candidate genes
- 1863 Genetic analysis of seedling root traits and fine mapping of the QTL *qLRL4* for the longest root length in rice
- 1874 QTL mapping and QTL×Environment interaction analysis of pod and seed related traits in cultivated peanut (*Arachis hypogaea* L.)
- 1891 Genome-wide association study of pre-harvest sprouting traits in wheat
- 1903 Fine mapping and candidate gene analysis of maize defective kernel mutant *dek54*
- 1913 Identification and analysis of sHSP gene family in Gossypioides kirkii
- 1927 Effects on drought tolerance by pladienolide B and rice with high expression of C₄-PEPC
- 1941 Molecular cloning, expression, and enzyme kinetic analysis of a phenylalanine ammonia-lyase gene in *Pinellia ternate*

YANG Qin-Li, YANG Duo-Feng, DING Lin-Yun, ZHANG Ting, ZHANG Jun, MEI Huan, HUANG Chu-Jun, GAO Yang, YE Li, GAO Meng-Tao, YAN Sun-Yi, ZHANG Tian-Zhen, and HU Yan

TIAN Biao, DING Shi-Lin, LIU Chao-Lei, RUAN Ban-Pu, JIANG Hong-Zhen, GUO Rui, DONG Guo-Jun, HU Guang-Lian, GUO Long-Biao, QIAN Qian, and GAO Zhen-Yu MENG Xin-Hao, ZHANG Jing-Nan, CUI Shun-Li, Charles

MENG Xin-Hao, ZHANG Jing-Nan, CUI Shun-Li, Charles Y. Chen, MU Guo-Jun, HOU Ming-Yu, YANG Xin-Lei, and LIU Li-Feng

XIE Lei, REN Yi, ZHANG Xin-Zhong, WANG Ji-Qing, ZHANG Zhi-Hui, SHI Shu-Bing, and GENG Hong-Wei ZHOU Lian, LIU Chao-Xian, CHEN Qiu-Lan, WANG Wen-Qin, YAO Shun, ZHAO Zi-Kun, ZHU Si-Ying, HONG

Xiang-De, XIONG Yu-Han, and CAI Yi-Lin FAN Kai, PAN Xin-Feng, MAO Zhi-Jun, YE Fang-Ting, LI

Zhao-Wei, LIN Wei-Wei, and LIN Wen-Xiong

SONG Ni-Xi, LI Xia, WANG Jin, WU Bo-Han, CAO Yue, YANG Jie, and XIE Yin-Feng

HE Xiao, LIU Xing, XIN Zheng-Qi, XIE Hai-Yan, XIN Yu-Feng, and WU Neng-Biao

TILLAGE & CULTIVATION • PHYSIOLOGY & BIOCHEMISTRY

- 1953 Characteristics and differences of rice yield, quality, and economic benefits under different modes of comprehensive planting-breeding in paddy fields
- 1966 Effects of combined application of slow release nitrogen fertilizer and urea on carbon and nitrogen accumulation in mechanical transplanted hybrid
- 1978 Competitive effect of soybean density on yield formation in maize/soybean intercropping systems
- 1988 Effects of uniconazole on physiological characteristics and microstructure under waterlogging stress at seedling stage in soybean
- 2001 Effects of exogenous 2,4-Epibrassinolide on nitrogen metabolism and TAs metabolism of *Atropa* belladonna L. under NaCl stress
- 2012 Effects of sowing date on the numbers of branches and spikelets per panicle of machine-transplanted *indica* hybrid rice at different tiller positions

CHE Yang, CHENG Shuang, TIAN Jing-Yu, TAO Yu, LIU Qiou-Yuan, XING Zhi-Peng, DOU Zhi, XU Qiang, HU Ya-Jie, GUO Bao-Wei, WEI Hai-Yan, GAO Hui, and ZHANG Hong-Cheng

LYU Teng-Fei, SHEN Jie, DAI Zou, MA Peng, YANG Zhi-Yuan, ZHENG Chuan-Gang, and MA Jun

REN Yuan-Yuan, ZHANG Li, YU Yao-Chuang, ZHANG Yan-Jun, and ZHANG Sui-Qi

WANG Shi-Ya, ZHENG Dian-Feng, FENG Nai-Jie, LIANG Xi-Long, XIANG Hong-Tao, FENG Sheng-Jie, JIN Dan, LIU Mei-Ling, and MU Bao-Min

XIN Zheng-Qi, DAI Huan-Huan, XIN Yu-Feng, HE Xiao, XIE Hai-Yan, and WU Neng-Biao

ZHONG Xiao-Yuan, DENG Fei, CHEN Duo, TIAN Qing-Lan, ZHAO Min, WANG Li, TAO You-Feng, and REN Wan-Jun

2028 Model for monitoring leaf dry weight of double LI Yan-Da, CAO Zhong-Sheng, SHU Shi-Fu, SUN Bin-Feng, YE Chun, HUANG Jun-Bao, ZHU Yan, and TIAN cropping rice based on crop growth monitoring and diagnosis apparatus Yong-Chao RESEARCH NOTES Combining QTL-seq and linkage analysis to iden-LIU Chang, MENG Yun, LIU Jin-Dong, WANG Ya-Mei, tify the QTL of mesocotyl elongation in rice (Oryza and Guoyou Ye sativa L.) 2045 Cloning and functional identification of gene LI Xiao-Xu, WANG Rui, ZHANG Li-Xia, SONG Ya-Meng, OsATS in rice TIAN Xiao-Nan, and GE Rong-Chao 2053 Evaluation of resistance to stripe rust and molecu-ZHAO Xu-Yang, YAO Fang-Jie, LONG Li, WANG Yu-Qi, lar detection of resistance genes of 93 wheat land-KANG Hou-Yang, JIANG Yun-Feng, LI Wei, DENG Mei,

A BRIEF INTRODUCTION OF ACTA AGRONOMICA SINICA

LI Hao, and CHEN Guo-Yue

races from the Qinghai-Tibet spring and winter

wheat zones

Acta Agronomica Sinica (AAS, ISSN 0496-3490) is a monthly academic journal co-sponsored by Crop Science Society of China and Institute of Crop Sciences, Chinese Academy of Agricultural Sciences, under the leadership of China Association for Science and Technology and published by Science Press, Chinese Academy of Sciences. AAS was firstly published in 1962. The predecessors were Chinese Journal of Agricultural Research started in 1950 and Acta Agriculturae Sinica started in 1952. As one of the key scientific journals in China, AAS has been financially supported by China Association for Science and Technology since 1997 and the National Natural Science Foundation of China since 2000.

The major aims of **AAS** are to report the progresses in the disciplines of crop breeding, crop genetics, crop cultivation, crop physiology, ecology, biochemistry, germplasm resources, grain chemistry, grain storage and processing, biotechnology and biomathematics etc. mainly in China and abroad. **AAS** provides regular columns for Original papers, Reviews, and Research notes. The strict peer-review procedure guarantees the academic level and raises the reputation of the journal. The readership of **AAS** is for crop science researchers, students of agricultural colleges and universities, and persons with similar academic level.

AAS is the leading journal of crop sciences and reflects the latest achievement in all aspects of crop sciences in China. It occupies the first position on the list of Chinese core journals in "Agronomy and Crops" field. The editorial board consists of 150 specialists in the field of crop sciences. Among them, 26 are academicians of Chinese Academy of Sciences or Chinese Academy of Engineering, 22 are from the outside of China, and 2 are from Hong Kong, China.

AAS is a fully Open Access Journal through the independent website (http://zwxb.chinacrops.org/) since 2004. Free full texts are published online two months earlier than printing version, and all articles of the journal from 1962 are available freely. Manuscript submission, tracking, and peer review process are completed online. The functions of eTOCs (Table of Contents Alerting), advanced paper search, and paper recommendation are available.

AAS are indexed in some international index systems, such as AGRIS (FAO), CAB Abstracts and Global Health of Centre for Agriculture and Bioscience International, Cambridge Scientific Abstracts, Chemical Abstracts, DOAJ, Food Science and Technology Abstracts, Index of Copurnicus, Japan Science and Technology Agency, Scopus, and VINITI Abstracts Journal (Russia). **AAS** is also referenced by many domestic databases and abstract periodicals.

The purposes of *AAS* are to enhance the development of crop science and technology in China, to promote nationwide and worldwide academic exchanges, and to accelerate the modernization of Chinese agriculture. *AAS* is distributed in China and abroad. The editorial office appreciates to establish publication exchange relationship with related institutions, agricultural colleges and universities, and international organizations in China and abroad.