

第39卷 Vol. 39

ISSN 1000-7601

CODEN GDNYEQ

# 干旱地区农业研究

GANHAN DIQU NONGYE YANJIU

AGRICULTURAL  
RESEARCH IN  
THE ARID AREAS



6  
2021

ISSN 1000-7601



# 干旱地区农业研究

第39卷第6期(总第189期)卷终

2021年11月10日出版

## 目 次

### 作物种质资源

- 不同生态区域旱地冬小麦品种(系)生态适应性筛选 ..... 邵千顺,杨琳(1)  
不同品种藜麦幼苗对干旱胁迫的生理响应及耐旱性评价  
..... 刘文瑜,杨发荣,谢志军,等(10)  
苦荞种质资源性状评价及优异资源筛选 ..... 李春花,加央多拉,陈蕤坤,等(19)  
62份陆地棉种质资源苗期抗旱性综合评价及耐旱种质筛选  
..... 韩永亮,李世云,路正营,等(28)

### 植物抗逆生理

- 苹果 *MdGH3-2/12* 在盐胁迫下的功能分析 ..... 马梦楠,刘媛,马锋旺,等(39)  
水分亏缺对小麦芒和旗叶光合特性及蔗糖、淀粉合成的影响  
..... 和娟,唐燕,李晓瑞,等(53)  
干旱胁迫下不同基因型小麦干物质转运对产量形成的影响  
..... 丁彤彤,李朴芳,曹丽,等(62)  
干旱胁迫下不同中间砧对苹果苗生理特性及 *MdPIP1-1*  
基因表达的影响 ..... 石晓英,王荣,姬新梅,等(73)

### 节水灌溉与土壤水分

- “超纤渗灌”对摩尔多瓦葡萄生长与果实品质的影响研究  
..... 陈拓,张清涛,陈郁,等(79)  
咸淡混合水喷灌对土壤水盐运移及小麦、玉米产量的影响  
..... 焦艳平,王罕博,张栓堂,等(87)  
干旱区膜下滴灌配合暗管与竖井排水对棉田土壤盐分的影响  
..... 许璇,何新林,衡通,等(95)  
基于深度学习人工神经网络的青椒调亏灌溉水量预测 ..... 刘婧然,武海霞,刘心,等(105)

### 耕作与栽培

- 基于覆膜积温补偿效应的 AquaCrop 模型优化模拟 ..... 丁奠元,徐志鹏,陈飞宇,等(113)  
秸秆和紫云英覆盖还田对玉米光合生理特性的影响 ..... 成欣,王一帆,刘帮艳,等(126)  
覆膜对不同播期冬小麦根系生长和产量的影响 ..... 陈紫薇,丁奠元,董文俊,等(136)

# 秸秆带状覆盖对旱地冬小麦农田土壤特性及产量的影响

..... 叶元生, 黄彩霞, 柴守玺, 等(146)

生长年限对甘肃贝母根际土壤细菌群落结构的影响 ..... 武 睿, 陈 垣, 郭凤霞, 等(153)

## 土壤与植物营养

### 不同比例有机肥替代化肥对玉米生长及水分利用效率的影响

..... 陈 倩, 谢军红, 李玲玲, 等(162)

### 氮肥施用方式对高丙醇二酸黄瓜生理特性、产量及品质的影响

..... 廉 华, 李润哲, 马光恕, 等(171)

### 秸秆粉碎带膜还田对玉米氮肥追施过程土壤氨挥发的影响初探

..... 王 奎, 卢秉林, 车宗贤, 等(179)

### 不同秸秆与氮肥管理措施对夏玉米产量及氮素利用的影响

..... 王鑫宇, 蔡焕杰, 王晓云, 等(185)

### 不同种植模式下苹果园土壤氮磷养分的分布特征

..... 董贞凯, 穆兴民, 李朋飞, 等(194)

### 水氮互作对川中丘陵区玉米水肥利用效率和产量形成的影响

..... 刘 凡, 刘斌祥, 刘佳媛, 等(200)

## 旱区生态与资源利用

### 气候变化下基于 GIS 的农田恶性杂草旱雀麦在中国的分布

与发展趋势 ..... 邓海艳, 程 亮, 郭良芝, 等(207)

### 半干旱区不同施肥量对旱作冬小麦田土壤呼吸的影响

..... 胡智临, 张 春, 贾志宽(215)

### 基于区间两阶段抗风险随机规划的绿洲水资源优化配置

..... 习凯燕, 虞佳陆, 张 敏, 等(224)

## 干旱监测预报

### 干旱胁迫下春小麦需水关键期叶水势的变化及其影响因素研究

..... 杜昊霖, 王鹤龄, 张 凯, 等(230)

### 夏玉米主要生育阶段倒伏类型特征曲线的构建与验证

..... 李树岩, 李军玲, 马志红, 等(238)

## 旱作农业机械

### 自走式青稞联合收获打捆一体机参数优化与试验

..... 戴 飞, 张仕林, 赵武云, 等(248)

### 4JH-270 型棉秆粉碎还田机机架振动分析及改进

..... 李 斌, 牛国梁, 刘 洋, 等(257)

## 研究动态

西北农林科技大学黄土高原土壤侵蚀与旱地农业国家重点实验室科研进展 ..... 翟惠平(266)

**CONTENTS****Crop Germplasm Resources**

- Selection of ecological adaptability of winter wheat varieties (lines) in different ecological regions ..... *SHAO Qianshun, et al*(1)  
Evaluation of drought tolerance and physiological response to drought stress of different varieties of quinoa seedlings ..... *LIU Wenyu, et al*(10)  
Evaluation and selection of Tartary buckwheat germplasm resources based on agronomic traits ..... *LI Chunhua, et al*(19)  
Comprehensive identification and selection of drought resistance of 62 cotton varieties (lines) at cotton seedling stage ..... *HAN Yongliang, et al*(28)

**Plant Adverse-resistance Physiology**

- Function analysis of *MdGH3-2/12* under salt stress in apple ..... *MA Mengnan, et al*(39)  
Effects of water deficit on photosynthetic characteristic and sucrose-starch synthesis of wheat awns and flag leaf ..... *He Juan, et al*(53)  
Effects of dry matter translocation on yield formation of wheat with different genotypes under drought stress ..... *DING Tongtong, et al*(62)  
Effects of different interstocks on physiological characteristics and *MdPIP1-1* gene expression of grafted apple trees under drought stress ..... *SHI Xiaoying, et al*(73)

**Water-saving Irrigation and Soil Moisture**

- Effects of microfiber wicking infiltration irrigation on grape growth and fruit quality of *Vitis vinifera* L.cv. Moldova in arid region ..... *CHEN Tuo, et al*(79)  
Effects of sprinkling irrigation with brackish and fresh water mixing on yield of wheat and maize and movement of soil water and salt ..... *JIAO Yanping, et al*(87)  
Effects of subsurface pipe and shaft on soil salinity in cotton field in arid saline-alkali land under drip irrigation and mulch ..... *XU Xuan, et al*(95)  
Water quantity prediction of regulated deficit irrigation for green peppers based on deep learning artificial neural network ..... *LIU Jingran, et al*(105)

**Tillage and Cultivation**

- Optimization simulation of AquaCrop based on the compensatory effect under plastic mulching ..... *DING Dianyuan, et al*(113)  
Effects of straw and milk vetch mulching and returning to the field on maize photosynthetic physiological characteristics ..... *CHENG Xin, et al*(126)  
Effects of plastic mulching on root growth and yield of winter wheat under different sowing dates ..... *CHEN Ziwei, et al*(136)

Effects of straw strip mulching on soil characteristics and yield of winter wheat in dryland ..... YE Yuansheng, et al(146)

Effects of growth years on soil bacterial community structure in rhizosphere soil of *Fritillaria przewalskii* ..... WU Rui, et al(153)

## **Soil and Plant Nutrition**

Effects of different proportions of organic fertilizer substitutes for chemical fertilizer on growth characteristics and water use efficiency of maize ..... CHEN Qian, et al(162)

Effect of nitrogen fertilizer application patterns on physiological characteristics, yield and quality of high propanol diacid cucumber ..... LIAN Hua, et al(171)

Effects of straw comminution and mulching on soil ammonia volatilization during corn nitrogen topdressing ..... WANG Xi, et al(179)

Effects of different straw and nitrogen fertilizer management measures on summer maize yield and nitrogen utilization ..... WANG Xinyu, et al(185)

The distribution characteristics of soil nitrogen and phosphorus nutrients under different planting models in apple orchards ..... DONG Zhenkai, et al(194)

Effect of water and nitrogen interaction on maize utilization efficiency of fertilizer, water and yield formation in the Middle Hilly Area of Sichuan Province ..... LIU Fan, et al(200)

## **Ecology and Resource Utilization in Arid Areas**

Distribution and development trends of farmland malignant weed *Bromus tectorum* L. in China under climate change ..... DENG Haiyan, et al(207)

Effects of different fertilizer application rates on soil respiration of dryland winter wheat fields in semi-arid area ..... HU Zhilin, et al(215)

The optimal allocation of oasis agricultural water based on the interval two-stage stochastic programming with CVaR ..... XI Kaiyan, et al(224)

## **Drought Monitoring and Forecast**

Change of leaf water potential and influencing factors of spring wheat during critical water requirement periods under drought stress ..... DU Haolin, et al(230)

Construction and verification of characteristic curve of lodging type in key growth stages of summer maize ..... LI Shuyan, et al(238)

## **Dryland Farm Machinery**

Parameter optimization and experiment of highland barley combine harvester with baler ..... DAI Fei, et al(248)

Vibration analysis and improvement for frame of 4JH-270 cotton rod crushing and returning machine ..... LI Bin, et al(257)

## **Research Advance**

Research progress of the State Key Laboratory of Soil Erosion and Dryland Farming on the Loess Plateau, Northwest A & F University ..... ZHAI Huiping(266)