

聂卫波,费良军,马孝义.基于土壤入渗参数空间变异性的畦灌灌水质量评价[J].农业工程学报,2012,28(1):100-105

基于土壤入渗参数空间变异性的畦灌灌水质量评价

Evaluation of border irrigation performance based on spatial variability of infiltration parameters

投稿时间: 5/25/2011 最后修改时间: 11/17/2011

中文关键词: [灌溉](#), [土壤](#), [入渗](#), [畦灌](#), [空间变异性](#), [灌水质量评价](#)

英文关键词: [irrigation](#) [soil](#) [infiltration](#) [border irrigation](#) [spatial variability](#) [evaluation of irrigation performance](#)

基金项目: 国家自然科学基金项目(51079121); 陕西省自然科学基金项目(2010JQ7010); 陕西省教育厅科研计划项目(11JK0640); 西安理工大学博士科研启动金; 中国博士后科学基金资助项目

作者	单位
聂卫波	1. 西安理工大学水资源研究所, 西安 71004
费良军	1. 西安理工大学水资源研究所, 西安 71004
马孝义	2. 西北农林科技大学旱区农业水土工程教育部重点实验室, 杨凌712100

摘要点击次数: 96

全文下载次数: 43

中文摘要:

畦灌灌水质量的客观评价是制定合理灌水方案的重要基础。该文假定土壤空间变异性主要体现在入渗系数的变化上,以在杨陵区一级阶地和三级阶地上进行的大田畦灌试验为例,分析土壤空间变异性对畦灌灌水质量的影响,并揭示畦灌灌水质量变化规律。结果表明灌水效率、灌水均匀度和储水效率随入渗系数的变异系数增大均呈现下降趋势,其中灌水效率和储水效率下降幅度较小,而灌水均匀度下降幅度较大。由此说明土壤入渗系数的变异性对灌水均匀度影响最大,而对灌水效率和储水效率影响相对较小。该文的研究方法对畦灌灌水质量评价结果可更好地反映客观实际,从而为制定合理的灌水方案提供依据和技术支持。

英文摘要:

Objective evaluation on border irrigation performance is an essential basis to set up a proper irrigation scheme. Assumed that the soil characteristics spatial variability can be directly reflected from the changes of infiltration coefficient, taken the border irrigation experiments conducted in Yangling District with the clay loam and sandy loam as study objects, the effects of the soil characteristics spatial variability to irrigation performance were analyzed and the changes of irrigation performance of border irrigation were revealed. Results showed that irrigation efficiency, distribution uniformity and storage efficiency decreased with the infiltration variation coefficient increased. The decrease range of the irrigation application efficiency and storage efficiency was smaller respectively compared with that of distribution uniformity. Therefore the spatial variability of soil infiltration coefficient has greater effect on distribution uniformity than the irrigation application efficiency and storage efficiency. The method proposed in this paper can much better reflect the actual irrigation performance of border irrigation and provide a proper irrigation scheme with theoretical foundation and technological support.

[查看全文](#) [下载PDF阅读器](#)

[关闭](#)

您是第**3628590**位访问者

主办单位: 单位地址: 北京朝阳区麦子店街41号

服务热线: 010-65929451 传真: 010-65929451 邮编: 100125 Email: tcsae@tcsae.org
本系统由北京勤云科技发展有限公司设计