

喷灌和软管灌溉两用机组水量分布特性与试验 Experiment and Analysis on Water Distribution Uniformity of Machine of Sprinkling Irrigation and Hose Irrigation Dual Purpose

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关键词: 喷灌 软管灌溉 水量分布特性 试验

摘要: 喷灌和软管灌溉两用轻小机组具有喷灌和软管灌溉两种灌水方式,且有高度可升降、喷幅可调等特点。采用理论分析和试验验证相结合的方法,对该机组水量分布特性进行了研究,分析了影响机组水量分布特性的因素,计算了机组在配置喷灌和软管灌溉系统时的喷灌强度、均匀系数,结果表明,影响机组水量分布均匀性的主要因素是所配置灌水器的水量分布特性、灌水器配置间距、行走速率、土壤和地形、风速等。在室内试验时,机组喷灌均匀系数达95%以上,软管灌溉均匀系数达90%,可满足灌溉需要。A new type lightweight and small irrigation machine with dual purpose of sprinkling irrigation and hose irrigation dual purpose was introduced, whose height and sprinkling breadth was adjustable. The water distribution uniformity of machine was studied by theoretical analysis and experimental validation, primary factors of which were analyzed, and sprinkling intensity and uniformity coefficient were calculated when the machine collocated sprinkling irrigation and hose irrigation system. The result show that primary factors effecting water distribution uniformity of machine are water distribution uniformity and collocating space of sprinkler, stepped speed, soil and landform, as well as wind speed. In lab experiment, the sprinkling uniformity coefficient exceeded 95%, and hose irrigation uniformity coefficient reached 90%, which fully met irrigation demand.

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