

## 喷灌均匀系数对土壤水分空间分布及作物产量影响的研究现状

### A Review on the Effects of Sprinkler Uniformity on the Spatial Distributions of Soil Moisture and Crop Yield

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中文关键词: 喷灌, 均匀系数, 土壤含水率, 作物产量

英文关键词: sprinkler irrigation, uniformity, soil water content, crop yield

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中文摘要:

喷灌均匀系数对土壤水分空间分布及作物产量的影响是制订喷灌均匀系数设计标准的重要依据,该文综述了这方面的研究成果。对喷灌条件下土壤含水率分布规律的数学模拟和田间试验研究都表明,水分在土壤中的再分布使得作物根区土壤含水率的均匀系数明显大于喷灌洒水均匀系数。目前关于喷灌均匀系数对作物产量影响的研究以模拟为主,现有模型的不足之处是未考虑喷洒水量在土壤中的再分布对提高土壤含水率均匀系数的作用。由于试验资料缺乏,模型所得结果难以验证,因此也很难在实际中应用。现阶段的工作重点是探明土壤含水率均匀系数和深层渗漏量与喷灌均匀系数的定量关系,开展喷灌均匀系数对作物产量影响的田间试验

英文摘要:

The effects of sprinkler uniformity on the spatial distributions of soil moisture and crop yield are fundamentally important for selecting design uniformity. This paper reviewed the researches concerning the aspects mentioned above. Both field experiments and simulations on the spatial distributions of soil moisture under sprinkler irrigation demonstrated that the water was more uniformly distributed in the soil than that on the ground surface. Current researches regarding the effects of uniformity on crop yield mainly concentrated on simulation models. A common disadvantage of the models is that the redistribution of sprinkler water in the soil is not included. Further experiments are obviously necessary to quantify the relationship between the spatial distribution of soil water content and sprinkler uniformity as well as the effects of sprinkler uniformity on deep percolation. Field experiments should also be conducted to establish crop yield and uniformity relation.

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