滴灌条件下砖红壤水分运动试验研究

Experimental study on water movement of latosol under drip irrigation

投稿时间：2004-9-3　　最后修改时间：2004-12-3

稿件编号：20050608

中文关键词：滴灌； 水分运动； 砖红壤

英文关键词：drip irrigation； water movement； latosol

基金项目：广东省农业科技攻关重大项目(A20601、2002A2040903)

作者	单位
李就好	华南农业大学工程学院，广州 510642
谭颖	华南农业大学工程学院，广州 510642
张志斌	华南农业大学工程学院，广州 510642
罗锡文	华南农业大学工程学院，广州 510642

中文摘要：

为了研究砖红壤水分入渗特性，并为雷州半岛旱作节水农业提供依据，在室内滴灌条件下进行了砖红壤水分入渗的试验研究。在有机玻璃容器中对0.5、1.0和3.0 L/h 3种滴灌流量下土壤水分入渗湿润峰进行试验分析，结果表明砖红壤水分的水平扩散、垂直扩散都与滴灌时间呈指数关系，并与流量成正相关关系。当流量为0.5和1.0 L/h时，砖红壤中水分扩散运动分为二个阶段：由开始的水平扩散速率大于垂直扩散速率过渡到水平与垂直等速扩散。在土箱中监测了0.3、0.6、0.9和1.2 L/h 4种滴灌流量下土壤水分分布，分析表明对于砖红壤土质，为了能使水分入渗达到一定深度，选择流量0.9~1.2 L/h对短期浅根作物连续滴灌4 h是合理的。

英文摘要：

To analyze water movement of latosol and provide foundation for dryland farming in Leizhou peninsula, the experiment of water movement of latosol under the conditions of indoor drip irrigation was investigated. The vertical and horizontal movements of water of latosol were tested under the drip flows of 0.5 L/h, 1 L/h and 3 L/h. The result indicated that the exponent relationships between the horizontal diffusion, vertical diffusion and drip irrigation time existed, and the horizontal and verticle diffusions of soil water were positively correlated with flow. Under the drip flows of 0.5 L/h and 1 L/h, the water movement could be divided into two phases of latosol: in the first phase, the speed of horizontal diffusion was greater than that of vertical diffusion, and the speed of horizontal diffusion was equal to the speed of vertical diffusion in the second phase. Under the drip flows of 0.3, 0.6, 0.9 and 1.2 L/h, the soil moisture contents at different locations and different depths were measured by using drying method. The relationship between soil moisture content and drip flow was analyzed. The results indicated that the appropriate drip flows were from 0.9 L/h to 1.2 L/h, and the time of drip irrigation was four hours for short-term and flat root crops.

查看全文　　关闭　　下载PDF阅读器