

蓄水多坑入渗条件下土壤水分运动建模与试验 Numerical Simulation on Soil Water Movement under Water Storage Pits Irrigation

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关键词: 土壤水分运动 三维入渗 数值模拟 蓄水坑灌

摘要: 针对蓄水坑灌坑内水头高且非恒定和土壤入渗边界复杂的特点,建立了蓄水多坑三维入渗及土壤水分运动数学模型,采用ADI交替方向隐式差分格式结合Gauss-Seidel迭代法对模型进行求解,并进行了试验验证,结果表明计算值与实测值吻合较好,说明所建立的数学模型正确,采用的数值求解方法是可行的。Aimed at the specialties of infiltration head higher and varying under the condition of water storage pits irrigation, numerical model of 3-D infiltration and the soil moisture movement of complicated boundary conditions in water storage pits was established. ADI method and Gauss-Seidel iterative method were used in numerical simulation followed by verification tests. The results showed that the calculated values were in accordance with the experimental results. This indicated the numerical model was correct and the method of solution was feasible.

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