



滨海盐土棉田棉花水、盐遥感监测系统的设计与实现

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Design and Implementation of Remote Sensing Monitoring System for Water and Salinity Content of Cotton in Coastal Saline Soil

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摘要 为监测滨海盐土棉田棉花的水、盐状况,对盐碱地植棉提供理论依据。本研究运用软件工程的思维,耦合了基于地面遥感手段构建的棉花功能叶水、盐状况监测模型和土壤介电常数模型,开发了具有监测滨海盐土棉田棉花和土壤水、盐状况功能的遥感监测系统。系统以光谱反射率和土壤介电常数数据为基本输入,对棉花功能叶和棉田土壤水、盐状况进行了预测计算,运行结果以表格和图形的形式输出。应用结果表明,该系统操作简单、运行稳定,监测结果准确,可为农业生产者、管理人员和科技人员提供棉作数字化和科学化的决策支持。

关键词: 棉花 盐土 遥感 监测 系统

Abstract: In order to apply software engineering to monitor the water and salinity content of cotton in saline soil, we developed a remote sensing monitoring system by integrating an estimation model for the water and salinity content of cotton leaf with a soil dielectric properties' model based on remote ground sensing. Through inputting hyper-spectral reflectance for functional leaves and microwave dielectric properties for saline soil as essential parameters, we were able to calculate and predict the water and salinity content of these systems. The running result was output, demonstrating the simple but reliable operation of this system. This system can provide digital and scientific decision support in cotton farming for farmers, agronomists, and researchers.

Keywords: cotton saline soil remote sensing monitoring system

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