水田驱动叶轮轮叶下土壤流动特性与动力性能研究 Soil Flow Rule and Dynamic Performance under a Paddy-field Wheel Lug

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关键词： 水田驱动叶轮 轮叶 土壤流动 动力性能

摘 要： 在自制的小土槽试验装置上，进行了水田驱动叶轮轮叶下土壤流动的拍摄和轮叶上土壤反力的测试。在研究轮叶下土壤流动轨迹、流动模式和流动区大小变化规律的基础上，分析了轮叶产生的推进力和支承力，驱动效率的变化规律及其与土壤流动之间的关系。深入分析了有较大陷深和作旋轮线运动的轮叶的驱动效率较低的原因。 The lug is the basic element of a paddy-field lugged wheel. Soil flowed under the lug develops the pull and lift forces on the lug. In a set of specially designed soil box, the soil flow under the lug was photographed and the soil reaction forces on the lug were measured. Firstly, soil flow track, flow mode and flow zone under a lug were studied. The effects of the pull force, lift force and driving efficiency and their relationship with the soil flow in the interaction between the soil and lug were analyzed. The cause of low driving efficiency was further studied for the lug with slip and deep sinkage.

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