

基于CFD的果园风送式喷雾机雾滴分布特性分析 CFD Simulation and Experimental Verification of Droplet Dispersion of Air-assisted Orchard Sprayer

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关键词: 果园喷雾机 风送式 CFD 模拟 雾滴 分布

摘要: 基于CFD技术建立了Hardi LB-255型果园风送式喷雾机雾滴沉积分布模型。根据实测的喷雾机相关参数, 确定了二维流场的边界条件及模型参数, 得到了约束条件下的雾滴沉积轨迹及不同层面上的沉积比率。设计与模拟条件相同的验证试验, 对模拟结果进行了验证分析。研究表明, 在距风扇中心小于240cm的区域内, 所建模型模拟结果能较准确描述雾滴沉积规律。 In order to investigate the droplet distribution of air-assisted orchard sprayer, a model for Hardi LB-255 air-assisted sprayer was developed based on CFD technology. The 2-D boundary and the model variables were defined to correspond to the tested sprayer. The trajectory of air-assisted droplets and the distribution of droplets in different layers were simulated. The relative errors of simulated results could show the droplet distribution accurately with the range less than 240 cm from the fan.

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