甘蔗收割机物流虚拟试验 Virtual Experiment on Flow Simulation of Sugarcane Harvester

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关键词： 甘蔗收割机 仿真 虚拟样机 物流过程

摘 要： 通过PRO/E和ADAMS虚拟样机技术对甘蔗收割机的整机及关键部件进行动力学仿真，分别对扶起装置、切割装置、夹持输送装置、铺放输送装置和剥叶装置等关键技术进行虚拟试验，研究了各部件收获甘蔗时的物流过程。通过高速摄影试验，分析扶起装置与夹持输送装置衔接过程并进行了田间试验验证。结果表明，虚拟样机能够顺利实现甘蔗的扶起、切割、夹持输送、铺放输送和剥叶等工序，可为生产物理样机提供参考。 In order to lift sugarcane in harvesting, the whole stalk sugarcane harvester was designed. Virtual prototyping and key parts of the sugarcane harvester were simulated in PRO/E and ADAMS. The virtual experiment was conducted in order to study the lifting device, cutting device, gripping conveyor, laying transmission device and cleaning device, and to analyze the flow in various parts of the sugarcane harvester. A high-speed photography experiment was carried out to analyze lifter and gripping conveyor. The field experiment was validated. Virtual results showed that the virtual prototype could smoothly lift, cut, clamp, lay and clean. Reference value was provided for physical prototype in manufacture.

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