

齿形刮板式残膜与残茬输送装置设计与试验

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关键词: 农业机械 清田整地联合作业机 输送装置 齿形刮板 起膜铲 优化设计

摘要: 研究了清田整地联合作业机齿形刮板式残膜、残茬及土壤输送装置的结构原理,分析计算刮板组工作行程的阻力、功耗和动能。以刮板组工作行程的功耗、动能消耗最小为目标函数,建立优化设计的数学模型,优化计算结果为刮板宽度890mm,高度260mm,间距500mm,工作速度2.5m/s,工作角度 33° 。通过试验表明优化设计结果合理,并确定了第1排刮板齿尖与起膜铲刀口的最佳距离为300mm。The structural principle of zigzag scraper transportation device in combine machinery for field cleaning and land preparation operations, which is used for remnant plastic film, stubble and soil, was studied. Meanwhile, the resistance, the energy consumption and power were analyzed. An optimization mathematical model was established for the pursuit of minimal energy consumption. The optimization results including the length of scraper 890mm, the width 260mm, the distance 500mm, the working speed 2.5m/s and the working obliquity 33° were obtained by calculation. Finally, the results were validated by experiment. The optimal distance between the first scrapers and loosening shovels was 300mm.

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