

双臂蔬菜嫁接机设计与试验 Design and Experiment of Vegetable Grafting Machine with Double Manipulators

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关键词: 蔬菜嫁接机 双臂 高速 设计 试验

摘要: 为提高2JSZ-600型单臂蔬菜嫁接机的嫁接速度和嫁接苗的成活率,在其基本结构基础上通过增加一组砧、穗木搬运机械手和优化切削机构几何参数,设计出一种双臂蔬菜嫁接机。通过机构分析和试验,确定了关键部件的结构参数。研究发现当切刀的旋转速度为210r/min时,砧、穗木的切削效果均能满足要求。试验结果表明,与单臂嫁接机相比,该机在保持相同嫁接成功率和嫁接苗个体差异适应性水平条件下,嫁接速度达到854株/h、嫁接苗成活率为93.3%,分别提高了42.3%和3.3%。To improve the grafting rate of 2JSZ-600 vegetable grafting machine and the survival ratio of vegetable seedling grafted, a high-speed vegetable grafting machine with double manipulators was developed based on the essential structure of the old machine with a set of manipulators for transporting stock and scion added and the geometrical parameter of cutting mechanism optimized. The key structural parameters were determined by mechanism analysis and experiment. The cutting effects of stock and scion were best when angular velocity of cutter was 210r/min. The experimental results indicate that the average grafting rate of the machine is 854 seedlings per hour and the survival ratio is 93.3%, compared with the old machine, under the condition of the same grafting success rate and adaptability to seedlings. The grafting rate and the survival ratio are increased respectively 42.3% and 3.3%.

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