

自走式灌木平茬机设计与试验 Design and Experiment on Self-propelled Shrub Cutter

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摘要: 针对我国西部地区沙生灌木平茬复壮工作迫切, 人工平茬难、劳动强度大、效率低等问题, 以及为荒漠化防治实现机械化技术, 设计了具有铰接式车体机构的自走式灌木平茬机, 实现扭腰式扇面摆动切割作业。提出了人工操纵与机具自适应仿形相结合的纵横向往形收割沙生灌木方法, 并对柠条、沙柳进行了收割试验。试验结果为: 柠条漏割损失率小于等于0.8%, 割茬破损率为2.9%; 沙柳漏割损失率小于等于0.8%, 割茬破损率为2.5%, 割茬高度小于等于7 cm, 整机可靠性系数98.5%, 生产率3 t/h。 Aiming at some problems of shrub in western region, such as difficult to harvest, heavy labor intensity and low productivity and so on, moreover, in order to provide technical support for combating desertification, a self-propelled shrub harvester with special articulated carbody was developed. It can work in twist-waist manner and sway along the sector surface. Simultaneously, one new shrub harvesting method of vertical and horizontal profile modeling for shrub combined manual operation with adaptive profile modeling was proposed. Also experiments on caragana microphylla and sand willow harvest were carried out. The tested results were listed as follows: caragana microphylla missing cutting rate was equal or less than 0.8%, percent of broken stubble was 2.9%; sand willow missing cutting rate was equal or less than 0.8%, percent of broken stubble was 2.5%, the height of stubble was equal or less than 7 cm, reliability coefficient was 98.5%, the turnout was 3 t/h.

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