

草地振动式间隔松土机设计与试验 Design and Experiment on Vibration Spacing Scarifier for Meadow

武广伟 宋建农 李永磊 王继承

中国农业大学

关键词: 松土机 振动 草原改良 虚实耕作 设计 试验

摘要: 针对我国草原长期超载放牧,造成土壤板结严重,导致草原退化的问题,设计了9ST-460型草地振动式间隔松土机。该机采用间隔配置的梯形框架式松土部件,利用曲轴连杆机构产生的向上激振力,对通过松土部件的土壤进行强制振动疏松,实现了在不破坏草原植被的条件下,对高坚实度草原土壤的松土作业。田间试验表明:机具在前进速度1m/s、振动频率10.0Hz情况下,作业稳定,松土效果明显。经检测,松土平均深度20.01cm,松土比43.4%,植被破坏率1.6%,生产率0.85hm²/h,达到了技术要求。作业后土壤容积密度和坚实度平均降低了30.0%和48.8%,可以获得适合牧草生长的虚实并存的耕作层,提高了土壤的蓄水保墒能力,天然草地和人工草地牧草产量分别增产73.99%和68.65%。Aimed to the serious problem of soil compaction and grassland degradation on account of long-term grazing overload, a 9ST-460 vibration spacing scarifier for meadow was designed. The loosening soil parts of interval ladder framework were adopted. By the exciting force produced by the vibration system which is composed of connecting rod and crankshaft to loose soil, the high-solid soil was achieved to loose on the condition without damage to grassland vegetation. Experimental results showed that the scarifier has the ideal loosen effect in the forward speed of 1m/s and vibration frequency 10.0Hz. The test showed that the rate of vegetation destruction is 1.6%, tillage depth is 20.01cm, scarification ratio reaches 43.4%, and productivity reaches 0.85hm²/h. The average soil bulk density and the average firmness reduce by 30.0% and 48.8%, respectively after loosening soil. The yield of natural grassland and artificial grassland increases by 73.99% and 68.65%, respectively. The tilled soil forms the spacing cultivated horizon adapting to the growth of grass. The effect is obvious to improve the grassland ecological environment and improve grass production.

[查看全文 \(请使用Adobe Acrobat 6.0版本浏览\)](#) [返回首页](#)

[引用本文](#)