

棉花苗期地膜回收机设计与试验 Design and Experiment of Plastic Film Collector for Cotton Fields during Seedling Period

杨丽 刘佳 张东兴 侯书林 徐飞

中国农业大学

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摘要: 设计了一种浮动同步卷膜式棉花苗期地膜回收机。分析和确定了起膜铲、抖土辊和浮动卷膜机构等关键部件的结构参数。采用起膜铲和扁纺锤状抖土辊相结合的结构,能很好地实现膜苗、膜土分离;采用浮动同步卷膜机构能有效避免收膜作业过程中的扯膜、断膜或滞留堵塞现象。田间试验表明:机具的最佳作业速度为2~3 km/h,当苗株高度不大于30 cm时,地膜回收率不低于95.7%,伤苗率不大于2.37%,能实现一膜两行种植模式的苗期棉田地膜捡拾回收。 A plastic film collector which could recycle plastic film for cotton fields during seedling period was designed, and the parameters of key components were analyzed and confirmed for film-loosening shovel, combined soil-dithering roller etc. The results of film separating from seedlings and soil were achieved very well by using claw type film-loosening shovel combined with flat spindle soil-dithering roller. The problem of breaking or blocking film was resolved by using a floating curl-up film roller which was synchronous with driving roller. Experimental results showed that the best working speed of the collector was 2~3 km/h, and the recovery rate was higher than 95.7% and the injury rate to cotton seedlings was less than 2.37% when the height of cotton seedlings was lower than 30 cm. The collector could pick up plastic film during seedling period for cotton fields which were used the planting pattern of one film two row seedlings.

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