拨指链式扶蔗器试验Experiment of the Finger-chain Type Sugarcane-lifter

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关键词： 甘蔗收割机 扶蔗器 拨指链 扶起后倒伏角 试验

摘 要： 对影响拨指链式扶蔗器扶起后倒伏角的设计参数：前进速度、下链轮转速、扶蔗器导轨倾角和扶蔗器导轨偏角进行了室内试验。通过四因素三水平正交试验和单因素试验，并利用数理统计方法建立了影响扶起后倒伏角的数学模型，探讨了扶蔗器的运动参数和结构参数对扶起后倒伏角的影响规律，并优化了设计参数。结果表明：4个设计参数对拨指链式扶蔗器的扶起后倒伏角具有显著影响，参数最优组合为：下链轮转速与前进速度应符合关系式n=-1599.618v2m+1609.678vm，导轨倾角为60°，导轨偏角为10°。A finger-chain type sugarcane-lifter was studied. The orthogonal and single experiments were conducted to study the following factors: advancing velocity vm, rotational speed of driven sprocket n, lateral-angle βof slideway and oblique-angle αof slideway. The mathematical models for the two evaluations index which contained lodging angle after lifting and different factors were constructed by using the method of mathematical statistics. And the parameters of the sugarcane-lifter were optimized. The results of experiments showed that these four factors had significant impact on lodging angle after lifting. The optimal parameters were as following: the function between rotational speed of driven sprocket n and advancing velocity vm was n=-1599.618v2m+1609.678vm, the oblique angle equaled to 60° and the lateral-angle equaled to 10°.

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