

贾洪雷,黄东岩,刘晓亮,王增辉,刘昭辰,马成林.耕作刀片在刀辊上的多头螺旋线对称排列法[J].农业工程学报,2011,27(4):111-116

耕作刀片在刀辊上的多头螺旋线对称排列法

Symmetrical multi-spiral arrangement of tillage blades on rotor

投稿时间: 4/10/2010 最后修改时间: 2/22/2011

中文关键词: [耕作](#) [机具](#) [设计](#) [卧式刀辊](#) [耕作刀片](#) [排列方法](#) [多头螺旋线](#)

英文关键词: [cultivation](#) [equipment](#) [design](#) [horizontal rotor](#) [tillage blade](#) [arrangement method](#) [multi-spiral](#)

基金项目: 国家科技支撑计划 (2011BAD20B09, 2011BAD16B10); 吉林省科技发展计划项目 (20090711)

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中文摘要:

为使通用刀片满足垄台碎茬或全幅旋耕不同耕作的农艺要求, 同时又使其耕作功耗小, 刀辊受力均匀, 提出了耕作刀片在卧式刀辊上的多头螺旋线对称排列法。该法将刀辊分成均等的左、右刀辊, 刀片分别在其上按多头螺旋线排列, 旋向相反, 升角相同。同条螺旋线上安装同向刀片, 相邻的螺旋线上安装反向刀片, 左、右刀辊上相对称的刀盘相应位置的刀片为反向刀片, 相继入土刀片之间间隔相等。将这种排列方法应用到不同机具上进行旋耕、碎茬作业, 各工况碎土率均值达到85.6%以上, 碎茬率均值达到80%以上, 能够减少刀辊的冲击振动, 延长了传动件及轴承的寿命, 使机具作业平稳。

英文摘要:

In order to make the universal blade meet the requirements of ridge stubble-breaking or full-width rot tilling, reduce the power consumption and make the forces acting on the rotor more evenly, a symmetrical multi-spiral arrangement method for the tillage blade on the horizontal rotor was presented. The blade rotor was divided into two equal rotors, a right rotor and a left one, on which the blades were arranged in a multi-spiral way. The spirals on the two rotors were in opposite directions, but the lift angle of the spiral on two rotors were the same. The blades on the same spiral were in the same bending direction, and those arranged on adjacent spirals were in the opposite bending direction. The bending direction of the blades on the blade disc of the right rotor was opposite to that in the corresponding position on the symmetrical blade disc of the left rotor. Test results of several different rotary tillage machines adopting the arrangement method in rot tilling and stubble-breaking operations showed that the average soil-breaking rate was higher than 85.6% and the average stubble-breaking rate higher than 80%. The use of the arrangement method in the rotary tillage machines can reduce shock and vibration, prolong the service life of the transmission part and increase the operating stability of the machines.

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