

高水分稻谷组合清理机设计与试验研究

Design and experimental research on combined cleaner for paddy rice with high moisture content

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中文摘要:

刚收割的高水分稻谷中夹杂较多碎禾叶、禾秆等纤维性杂质, 进入烘干机之前必须进行清理。针对国内外对高水分稻谷清理技术研究很少和现有稻谷清理设备不适合处理高水分稻谷的现状, 设计了稻谷组合清理机。运用生产试验和现场检测的方法, 分析处理量与稻谷水分、设备吸风量、筛孔尺寸及分布、筛板倾角及分布、振动频率等参数之间的联系与相互作用。试验表明: 当稻谷含水率高于20%时, 组合清理机的筛孔尺寸按上层50×50、中层30×30、下层15×15分布, 筛板倾角按上层21°、中层17°、下层13°布置, 并且穿过筛孔的实际风速为稻谷悬浮速度的1.1~1.2倍时, 处理量较大, 清理效果较好。

英文摘要:

Before entering tower dryer, the harvested paddy rice with high moisture content, which contains many fiber impurities, such as broken crop leaves, straws, etc., must be cleaned. Aiming at the present situation that there are few reports about cleaning technology for high moisture content paddy rice at home and abroad and current paddy cleaners are not suitable for treating high moisture paddy rice, so combined cleaners were designed. Interrelationship and interaction among parameters, namely, treating capacity with moisture content of paddy rice, air suction volume of equipment, sieve size and distribution, the tilt angle of sieve-plate and distribution, vibrating frequency, etc., were analyzed by production experiment. Tested results show that when the moisture content of paddy rice is higher than 20%, sieve size of the combined cleaner should be distributed according to the upper layer 50×50, the middle 30×30 and the lower 15×15, and the tilt angle of sieve-plate should be arranged according to the upper layer 21°, the middle 17° and the lower 13°. Besides, actual wind velocity passing through sieve size should reach 1.1 to 1.2 times of suspension velocity of paddy rice itself so that treating capacity can be larger and cleaning effect can be better.

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