THE EFFECT OF SCREW ANGLE (α) AND COMMODITIES TO THE PERFORMANCE OF SCREW CONVEYOR ON TWO DIFFERENT ANGULAR SPEEDS (40 & 54 RPM)

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ABSTRACT

The aims of this research were to make and test the material transportation device of grains dan legumes (corn, soybean, and green beans) screw type (screw conveyor), to find the effect of screw angle (α) and commodities to performance of screw conveyor, and to find out the best screw angle (α) and commodity to performance of screw conveyor for each angular speed those are 40 and 54 rpm. This research has been conducted on December 2014 until February 2015. This research was conducted in two phases, those are creating device which conducted in CV WIDODO, Kuripan village, West Teluk Betung sub-district, Bandar Lampung and testing was conducted at the Laboratory of Power and Agricultural Machinery, Agricultural Engineering Department, Faculty of Agriculture, University of Lampung. This research was conducted in three different screw angles, those are 30°, 45°, dan 60°. Later, these three different screw angles are subjected to three repetitions and in two different angular speed (rpm), those are 40 rpm and 54 rpm. The results show that the best working capacity of screw conveyor on the variation of screw angle and commodities for each angular speed for 40 rpm on soybean and 30° screw angle is about 178.6 g/s, while for 54 rpm on green beans and 30° screw angle is about 238 g/s. It can be indicate that speed rotation (rpm) and screw angel affect significantly on screw conveyor; s working capacity.

Keywords : Screw conveyor, screw angle, grains and legumes