THEORETICAL STUDY OF THE MOVEMENT PROCESS OF COTTON SEEDS TRANSPORTED ON A SCREW CONVEYOR

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ABSTRACT

In this scientific article, the movement of cotton seeds on a screw conveyor and the forces resisting this movement are studied. Based on the constructed mathematical model, the mechanism of seed mass compaction is formed, the moving force caused by the screw conveyor blades, the seed mass, the force of gravity and the frictional force generated along the entire length of the screw are calculated. As the mass of the cotton seeds increases, the angular dependence of the frictional force generating them with the inner surface of the screw conveyor increases, and vice versa, the angular dependence of the screw surface reaction decreases. This in turn leads to a decrease in the compaction coefficient of the seed mass within the conveyor. As a result, a decrease in congestion inside the conveyor of cotton seeds was observed.

KEYWORDS: *Conveyor, Cotton, Seed, Mathematical Model, Mass, Screw, Weight, Force, Density, Reaction, Coefficient Of Friction, Speed, Acceleration.*

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