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Study of the Effect of Grain Pipe Variations on the Supply of Grain in Coulter Space



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Abstract The study of vibrations of the grain pipe drill along which the seeds of cereal crops move and the influence of the main physical-mechanical and geometric characteristics, method of consolidation and the relative velocity of the grain along the tube on the amplitude-frequency characteristic of oscillation is made. The problem of analytical study of dynamic processes of systems characterized by longitudinal movements with regard to their flexural rigidity remains open. To solve the problem we propose the approach takes into account that the number of the relative motion of grain in the grain pipe is a small amount compared to the movement of the pipe during its bending vibration, and the speed of continuous grain flow in the grain pipe is changing slowly. To solve this problem authors used the principle of the single-frequency of the oscillations in nonlinear systems with lumped masses and distributed parameters and asymptotic methods of nonlinear mechanics.

Keywords Vibration · Coulter · Seed line · Seed

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