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Pryvedenы Studies kinetics of the process of obtaining kombykormovыh mixture with a view of obtaining ravnomernosty apportionment of components in the mixture, Animal Husbandry installed norms.

Smeshyvanye, Ravnomernost, kinetics, kombykorm, mixture.

Researches of kinetics of process of receiving formula-feed mixes for purpose of obtaining uniformity of distribution of components are given in the mix established by zootechnical norms.

Mixing, uniformity, kinetics, compound feed, mix.

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RESULTS OF EXPERIMENTAL DOSLIDZHENTRYVALOSTI AIR FILLING SYSTEM "MILKING CUP- Pulsator "

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The analysis of experimental results duration of filling air chambers variable vacuum pressure of "milking cup- Pulsator "to nominal atmospheric pressure. The influence of structurally-technological parameters on temporal characteristics pulsator mode of the milking machine.

Milking machine pnevmoeletromahnitnyy pulsator, vacuum pressure, duration of pumping system "milking cup - Pulsator ".

Formulation of the problem. Designing new designs Milking devices requires theoretical definition of technological characteristics of their work. Construction pulsators take into account the air flow required for a given design geometrical sizes of volume that would define modes and energy costs. Therefore, modeling of structural and technological parameters Milking machine must experimental study of their impact on air flow and these elements milking apparatus as a whole.

Analysis of recent research. The study of the impact of structurally technological parameters of the process pulsator pumping and filling the air of "milking cup - pulsator" devoted several works [1-5]. The regularities of processes of pumping and filling the air chambers variable vacuum pressure of "milking cup - pulsator" allow to justify the transition of the system from compression stroke to stroke sucking and vice versa. In the regime of pnevmoelektromahnitnoho pulsator characteristics affecting the volume variable chamber vacuum pressure, the diameter of the bypass holes pulsator, vacuum pressure. The design of adaptive pnevmoelektromahnitnoho Milking machine [6] can reduce the duration of transients pulsator, achieved a decrease in the volume variable chamber vacuum pressure through extraction of construction milking machine vacuum hoses that lead to variable pressure vacuum chambers betwen leaves the milking cups. Analysis of theoretical simulations showed that the vacuum pressure 48 kPa, chambers of variable volume vacuum pressure of 10-4-1,8 · 10^{-4} m3, Overflow hole diameter 4 · 10-3-3 · 10^{-3} m, Duration of air chambers variable vacuum pressure (transition in the compression stroke) will respectively 0.083-0.149 sec [1].

The purpose of research. Experimental study duration of filling air chambers variable vacuum pressure of "milking cup - pulsator" depending on structurally-technological parameters pnevmoelektromahnitnoho pulsator.

Presenting main material. According to the developed technique [7] conducted an experiment planned study duration pumping air of "milking cup - pulsator". Factors affecting the duration of pi by vacuum pressure, the diameter of the hole dper through which the space is filled with air chambers variable vacuum pressure system variable volume chamber vacuum pressure remained unchanged.

Regression model obtained in the experimental implementation plan nekompozytsiynoho second order Box-Banking on three levels with five times the repeatability of experiments. Selection factors limits values was carried out on the basis of real milking machine and based on the results of theoretical studies [2, 7]. Thus, the vacuum pressure varied from 40 kPa on the lower level to 48 kPa at the top level of the variation interval 4 kPa. For the use of air equivalent diameter, which equated to overflow orifice diameter dper - from2.5 mm on the lower level to 3.8 mm

on top of varying intervals 0.7-0.6 Mm. The regression equation describing the dependence of duration t filling air chambers variable vacuum pressure of the vacuum pressure PIX and Checkpoint dper diameter hole in natural values is:

$$t = -0{,}2872 + 0{,}02359 \cdot P_i - 0{,}07258 \cdot d_{nep} - 0{,}00075 \cdot P_i \cdot d_{nep} - 0{,}0001825 \cdot P_i^2 + 0{,}00883 \cdot d_{nep}^2 . \quad (1)$$

Checking the reproducibility of experiments conducted by comparing calculated and tabulated GT GR important criterion Cochran. As was the condition $G_p \le G_T$ [7; 8] - reproducible experiments. The significance of the regression coefficients tested using criteria Student (t-test) for the selected parameter significance (0.95) and the degree of freedom [8]. After comparing each factor, it was concluded that all significant factors.

Suitability regression equation to describe the real test, depending on factors optimization was performed using the Fisher criterion (F-criterion) by a known method [8-10] of conditions (2).

$F_p \le F_T$ - Adequate model, $F_p \ge F_T$ - The model is not adequate, (2)

where: FT - table-valued F-test for the degree of freedom of the main f1 = 3 dispersion and dispersion adequacy f2 = 36 - is F_T = 2.9 [8.10]; Froz - the estimated value of Fisher criterion is equal Froz = 0.1163.

Considering $F_p \le F_T$ Because 95% probability we can say that the model is adequate. Graphically presented regression equation in a three-dimensional plane shown in Fig. 1. important was to evaluate the effect of vacuum pressure PIX and Checkpoint hole diameter dper the duration t filling air chambers variable vacuum pressure system "glass-milking pulsator." To this end, built by January dimensional line tiered release test study [7] (Fig. 2).

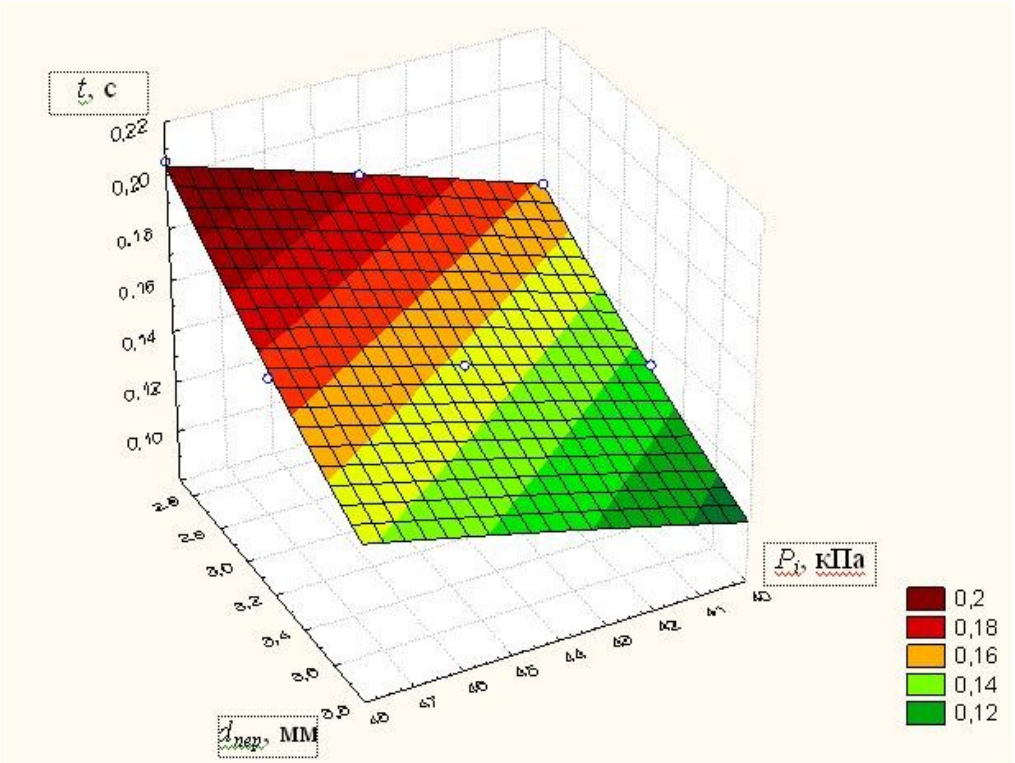

Fig. 1. Dependence duration t filling air chambers variable vacuum pressure system "glass-milking pulsator" from the overflow hole diameter dper pulsator pressure and vacuum gauge rea.

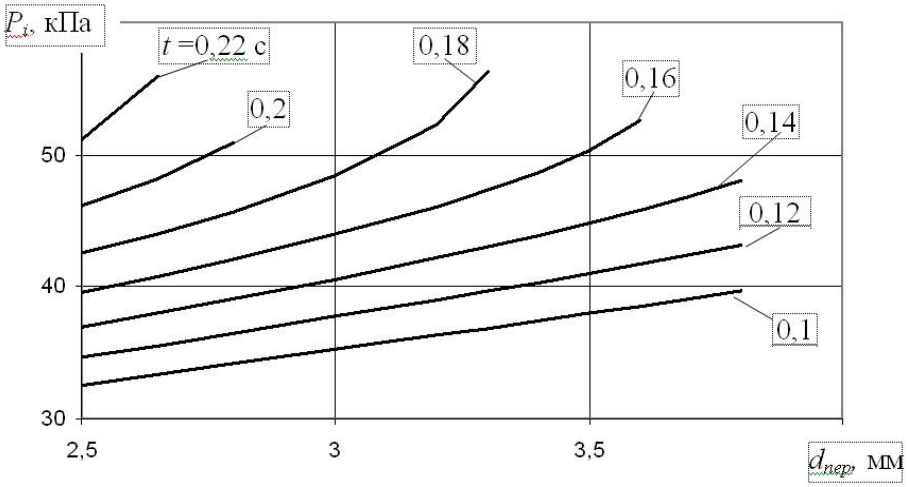

Fig. 2. Effect of vacuum pressure pi dper overflow hole diameter on the duration t filling air chambers variable vacuum pressure of "milking cup - pulsator".

Analysis of the surface showed that the duration of the air affects most diameter bypass holes pulsator. According to decrease duration of air increases nonlinearly.

A comparison of theoretical and experimental research results (Fig. 3) was detected deviation. The deviation of experimental data from theoretical modeling [4] duration of filling air chambers variable vacuum

pressure of "milking cup - pulsator" within 3,4-25,4%. The largest deviation is 25.4% by vacuum pressure *Ri* = 44 kPa and overflow hole diameter pulsator dper = 3.8 mm, the vacuum pressure Pi = 40 kPa and overflow hole diameter pulsator dper = 3.8 mm deviation from theoretical experimental data is 21.2%.

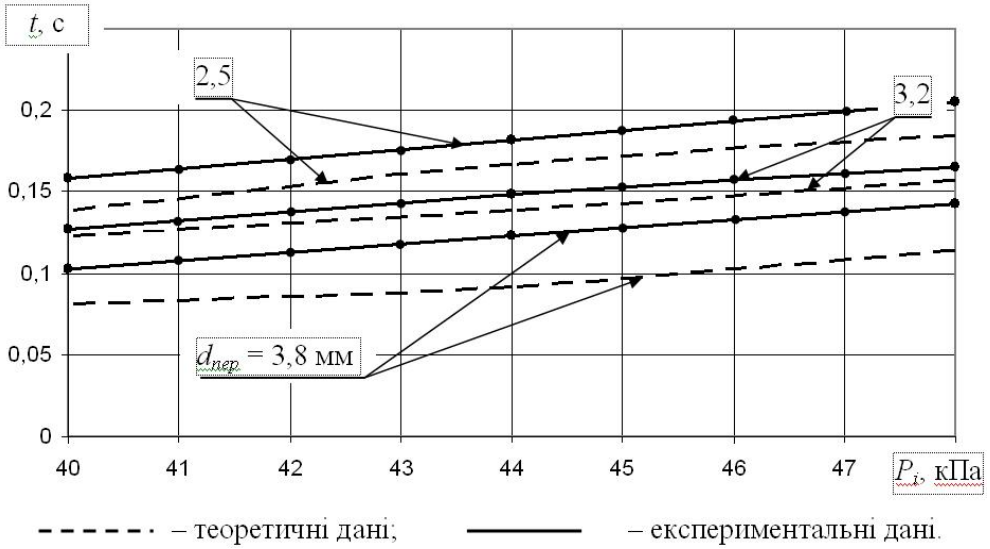

Fig. 3. Dependence duration t filling air chambers variable vacuum pressure from vacuum pressure and diameter Ri dper overflow hole pulsator.

In order to reconcile theory with experimental data dependencies in the equation for calculating the duration of filling air chambers variable vacuum pressure of "milking cup - pulsator" introduce coefficient of 1.05.

Conclusions

The results of experimental studies confirmed the theoretical study. Established that duration of t air chambers variable vacuum pressure system "glass-milking pulsator" increases with decreasing diameter overflow hole dper pulsator and with increasing vacuum pressure Pi.

Analysis of the experimental models enables recommend rational parameters provided pnevmoelektromahnitnoho pulsator providing the smooth shockless closing diykovoyi rubber milking cups with vacuum pressure Pi = 48 kPa and variable volume chamber pressure vakuummmetrychnoho of "milking cup - pulsator" V = 10^{-4} m3.

Daily shockless closing diykovoyi rubber milking cup ensured duration of t air chambers variable vacuum pressure within 0.155 p ≤ t ≤ 0,165 with overflow hole with a diameter pulsator dper = 3,2-3,4 mm.

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Conducted analysis of results of research Duration эksperymentalnыh process napolnenyya air chambers peremennoho vacuum pressure system "doylnыy glass - pulsator" to nominal atmospheric pressure. Proanalyzyrovano Effect konstruktsyonno and technological parameters pulsator mode to work vremennые characteristics doylnoho apparatus.

Doylnыy apparatus, pnevmoeletromahnytnyy pulsator, vakuummetrycheskoe pressure of, Duration otkachky system "doylnыy glass - pulsator".

The analysis of experimental results duration of filling air chambers variable vacuum pressure system "glass -milking pulsator"to nominal atmospheric pressure. Influence of structurally and technological parameters to pulsator mode of temporal characteristics of milking machine.

Milking machine, air-eletromagnit pulsator,vacuum pressure, pumping duration, system "glass - milking pulsator".