

Simulation investigations on airflow velocity in the short milking tube of the cluster

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Abstract: *Simulation investigations on airflow velocity in the short milking tube of the cluster.* Conditions of mechanical milking are subject of interest for both the science and practice with respect to significant effect on the health of cows, quality of milk (consumer's satisfaction) and, as a result, on production effectiveness and milk processing. Particular attention has been paid to pressure working parameters of the cluster and the connected return flows. The return flow velocity of milk and air in the cluster amounts on average to several m/s which means, that fluid particles hit the teat end at approximately same velocity (hit frequency equals to 1 Hz).

However, under unfavourable conditions the velocity of single aerosol particles can exceed even 150 m/s, as proved by information and results of investigations of Alfa Laval firm; such velocity is close to a bullet speed. Such phenomenon constitutes a significant hazard to the cow's udder with respect to a powerful hit as well as transferring of mastitis infection within the cluster.

Key words: claw, short milking tube, airflow velocity

Effect of selected technical and technological factors on energy consumption in the oil seed processing plants

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Abstract:. *Effect of selected technical and technological factors on energy consumption in the oil seed processing plants.* Results of investigations on energy consumption in the oil seed

processing plants are presented. The effect of power installed and the structure of twenty-four hour raw material processing on the consumption of thermal and electrical energy was determined. At the same time an attempt was undertaken towards determination of variability of the plant's unitary energy consumption index with consideration to the factors affecting energy consumption in the plants of such type.

Key words: oil manufacturing industry, energy consumption, indices of unitary energy consumption, mathematical models

Evaluation of wear of injection pump elements used in agricultural tractors supplied with diesel oil of low sulphur content

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Abstract: *Evaluation of wear of injection pump elements used in agricultural tractors supplied with diesel oil of low sulphur content.* The effect of properties of diesel oil of low sulphur content on the wear of in-line type and distributor type injection pumps used in agricultural tractors was investigated. There were determined: leakproofness of pressing pairs, circularity and roughness deviations of pressing element surfaces, and nominal doses of injection pumps. No wear affecting pump exploitation parameters was found after 100 hours of work.

Key words: diesel oils, injection pumps, wear

Application of computer simulation in shaping of fuel delivery course in the Common Rail system of self-ignition engines

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Abstract: *Application of computer simulation in shaping of fuel delivery course in the Common Rail system of self-ignition engines.* The courses of heat evolution velocity during the combustion process in self-ignition engines of various constructional solutions are analyzed in the paper. There is presented a measuring stand together with a software enabling to simulate the course of fuel delivery; the results of preliminary investigations on Common Rail system carried out with the use of measuring stand are also presented.

Key words: Common Rail, self-ignition, computer simulation, heat evolution, combustion, injection systems

Effect of selected technical and technological factors on water consumption in the milk plants

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Abstract: *Effect of selected technical and technological factors on water consumption in the milk plants.* Results of investigations on water consumption in the milk plants are presented. The effect of electrical equipment power installed and the structure of twenty-four hour milk processing on water consumption level and the plants' indices of unitary water consumption are determined.

Key words: milk industry, water consumption, regression models

Evaluation of various methods in raw milk handling after milking from the viewpoint of energy and economics

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Abstract: Evaluation of various methods in raw milk handling after milking from the viewpoint of energy and economics. The work aimed at pointing out the technical, technological and economic limitations shaping effectiveness of two methods for raw milk handling on the farms, and on the way between milk farms and a processing plant. In comparative investigations there were considered the following technologies: with cooling and without cooling the milk after milking, determining the further mode of handling: collecting and transport of milk from a farm with the use of an auto-cistern (every second day) and transport of not cooled milk to the processing plant directly after each milking (twice a day). As evaluation criteria there were taken: labour inputs, energy consumption, productivity and costs.

Key words: auto-cistern, effectiveness, energy consumption, milk, technology, transport

A method of designing the diagnostic test for a Diesel engine injection system

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Abstract: *A method of designing the diagnostic test for a Diesel engine injection system.* There is presented a method of designing the structural model of an engine fuel system, enabling to make a diagnosis on the selected elements of the system. The processes proceeding in the system were described with the use of analytical equations. The discrete functions were introduced, enabling to analyze the dynamic system.

Key words: diagnostics, models of diagnostic tests, fuel system

Selected aspects of designing repair processes in Ukraine

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Abstract: *Selected aspects of designing repair processes in Ukraine.* There are presented possibilities of improvement in the repair process of various type engines, with the use of a specified technological line. Statistical investigations were carried out on engine repairing in the selected region of Ukraine. The repairing process was determined with the use of empirical coefficients.

Key words: process of repair technology, engines

Influence of annual utilization of tractors and combines on direct costs of winter wheat cultivation

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Abstract: *Influence of annual utilization of tractors and combines on direct costs of winter wheat cultivation.* An influence of annual utilization of tractors and combines on direct costs of winter wheat cultivation has been determined. Increasing an annual utilization value of tractors and machinery, their influence on exploitation cost of agricultural equipment and direct costs of winter wheat production was observed.

Key words: tractors and machinery, annual utilization, exploitation costs